LUMANTEK®

manual

WEIVER 2.0

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Environmental Issues

Thank you for buying a product which contributes to a reduction in pollution and thereby helps save the environment.

Our products reduce the need for travel and transport and thereby reduce pollution. Our products have either no or few consumable parts (chemicals, toner, gas, paper). Our products are low energy consuming products.

Waste handling:

There is need to send material back to LUMANTEK. Please contact your local dealerfor information on recycling the product by sending the main parts of the product for disassembly at local electronic waste stations.

Production of products:

Our factories employ the most efficient environmental methods for reducing waste and pollution by ensuring that the products are recyclable.

OPERATOR SAFETY SUMMARY

For your protection, please read these safety instructions completely before operating the equipment and keep this manual for future reference. The information in this summary is intended for operators. Carefully observe all warnings, precautions and instructions both on the apparatus and in the operating instructions.

Equipment Markings

The lighting flash symbol within an equilateral triangle is intended to alert the user to the presence of un insulated "dangerous voltages" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electrical shock. The exclamation mark within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions within literature accompanying the equipment.

Warnings

Water and Moisture :

Do not operate the equipment under or near water - for example near a bathtub, kitchen sink, or laundry tub, in a wet basement, near a swimming poor or in areas with high humidity. Cleaning - Unplug the apparatus from the wall outlet before cleaning or polishing. Do not use liquid cleaners or aerosol cleaners. Use a lint-free cloth lightly moistened with water for cleaning the exterior of the apparatus.

Ventilation :

Do not block any of the ventilation openings of the apparatus. Install in accordance with the installation instructions. Never cover the slots and openings with a cloth or other material. Never install the apparatus near heat sources such as radiator, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.Grounding or Polarization - Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plus has two blades and a third grounding prong.

The wide blade or third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician. Power-Cord Protection - Route the power cord so as to avoid it being walked on or pinched by items placed upon or against it, paying particular attention to the plugs, receptacles, at the point where the cord exits form the apparatus.

Attachments :

Only use attachments as recommended by the manufacture.

Accessories :

Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

Lighting :

Unplug this apparatus during lightning storms or when unused for long periods of time.

ISDN cables :

CAUTION - to reduce the risk of fire, use only No. 26 AWG or larger telecommunication line cord.

Servicing :

Do not attempt to service the apparatus yourself as opening or removing covers may expose you to dangerous voltages or other hazards, and will void the warranty. Refer all servicing to qualified service personnel.

Damaged Equipment :

Unplug the apparatus from the outlet and refer servicing to qualified personnel under the following conditions - When the power cord or plug is damaged or frayed If liquid has been spilled or objects have fallen into the apparatus If the apparatus has been exposed to rain or moisture If the apparatus has

been subjected to excessive shock by being dropped, or the cabinet has been damaged If the apparatus fails to operate in accordance with the operating instruction

Warranty Period

Lumantek Test & Measurement and Broadcasting products normally carry a 1-year limited warranty (including labor and parts) Unless noted, Lumantek Digital Media products normally carry a 1-year limited warranty (including labor and parts).

Return Material Authorization Policy

No product may be returned directly to Lumantek without first contacting Lumantek for a Return Material Authorization ("RMA") Code. If it is determined that the product is defective, you will be given an RMA Code and instructions for product return for servicing or replacement. An unauthorized return such as where an RMA Code has not been issued, the product will be returned to you at your expense. Authorized returns are to be shipped prepaid and insured to the address on the RMA in an approved shipping container (original box and packaging materials or similar). To request an RMA Code, please visit on http://www.lumantek.com/support/rma_services_instruction.html

Warranty Limitations

Lumantek's limited warranty provides that, subject to the following limitations, each product will be free from defects in material and workmanship and will conform to Lumantek's specification for the particular product.

Limitation of Remedies

Your exclusive remedy for any defective product is limited to the repair or replacement of the defective product.
Lumantek may elect which remedy or combination of remedies to provide in its sole discretion. Lumantek shall have a reasonable time after determining that a defective product exists to repair or replace a defective product. Lumantek's replacement product under its limited warranty will be manufactured from new and serviceable used parts. Lumantek's warranty applies to repaired or replaced products for the balance of the applicable period of the original warranty or ninety days from the date of shipment of a repaired or replaced product, whichever is longer.

Limitation of Damages

Lumantek's entire liability for any defective product shall in no event exceed the purchase price for the defective product. This limitation applies even if Lumantek cannot or does not repair or replace any defective product and your exclusive remedy fails of its essential purpose.

No Consequential or Other Damages

Notwithstanding anything else in this policy or otherwise, Lumantek will not be liable with respect to the products under any contract, negligence, strict liability or other legal or equitable theory (i) for any amount in excess of the purchase price for the defective product or (ii) for any general, consequential, punitive, incidental or special damages. These include loss of recorded data, interruption of use, the cost of recovery of lost data, lost profits and the cost of the installation or removal of any products, the installation of replacement products, and any inspection, testing, or redesign caused by any defect or by the repair or replacement of products arising from a defect in any product. This section does not limit liability for bodily injury of a person.

Your Use of the Product

Lumantek will have no liability for any product returned if Lumantek determines that:
The product was stolen from Lumantek.

The asserted defect:

- Is not present,
- Cannot reasonably be fixed because of damage occurring when the product is in the possession of someone other than

Lumantek, or
- Is attributable to misuse, improper installation, alteration (including removing or obliterating labels and opening or removing external covers (unless authorized to do so by Lumantek), accident or mishandling while in the possession of someone other than Lumantek.
The product was not sold to you as new.
The product was not used in accordance with Lumantek specifications and instructions.
The product was not used for its intended function.

Additional Limitations on Warranty

Lumantek's warranty does not cover products which have been received improperly packaged, altered, or physically damaged.

WEIVER 2.0

RF Capture & Playback System (Frequency from 0.1MHz to 2.7GHz)

1. WEIVER 2.0 / INTRODUCTION

1.1 / WEIVER 2.0 SYSTEM

WEIVER captures and playsback RF signals with center frequencies between 100KHz ~ 2.7GHz RF signal and stores the file in its internal SSD or optional external SSD.

The major components in the WEIVER system include WEIVER Board (ADC, DAC and Upconverter), Downconverter, and RF Attenuator. The system is powered by an industrial-grade Windows Embedded 7. The RF Downconverter is capable of covering 100KHz to 2.7GHz RF Signals and downconverts to 150MHz IF. The WEIVER Board consists of the ADC, DAC and Upconverter. The RF Attenuator adjusts the power of the signal. The saved data files are in 16 Bit I, Q are the bandwidth around the center frequency of 8M, 24M, 48M and 56M Max. Depending on the captured bandwidth, the SSD is capable of writing 40MB/s for a bandwidth of 8M and 120MB/s for 24M, 240MB/s for 48M.

The WEIVER is capable of capturing all terrestrial RF signals including following signals [DRM / FM / AM / DVB-T/T2 / DVB-S/S2 / DVB-C/C2 / DAB / DAB+ / ATSC / ATSC-MDTV / NTSC / CMMB / QAM-B / ATV / ISDB-T / DTMB / T-DMB CDMA / CAL / UMTS / Wifi / WiMax / PMR / GPS / Galileo / Glonass / Bluetooth / LTE]. WEIVER is equipped with Gigabit LAN ports. For the captured RF signals the built-in GPS module provides pinpoint locative context every 1 second. For precise location, the external active antenna is recommended. The GPS information is stored in the NMEA protocol with the GPRMC information stored in a log file.

The Trigger function can be activated and deactivated. WEIVER can get the capture started or stopped after receiving trigger signals. The trigger signals from outside is a positive or negative edge of TTL or CMOS. When the primary internal SSD is not full, the WEIVER's eSATA interface supports for lightning-fast 320MB/s write and 520MB/s read speeds to an external SSD. The WEIVER has 10MHz Reference Clock input port to enable for external synchronization.

1.2 / USER SYSTEM REQUIREMENT

Your PC(System) must meet the following specification.

- **Computer / Processor**
  - Intel Pentium 4 2.33GHz - Athlon 64 2800 or the faster processor

- **Operating System**
  - Windows xp 32/64 bit service pack(sp2)
  - Windows Vista 32/64 bit service pack(sp2)
  - Windows 7 32/64bit
  - Windows 8 32/64 bit

- **Memory**
  - 2GB RAM

- **Hard Disk Space**
  - 100 MB available hard disk space

- **Screen**
  - 1024x768, "32-bit True Color" – DirectX 9.0c or higher

- **Graphics Card**

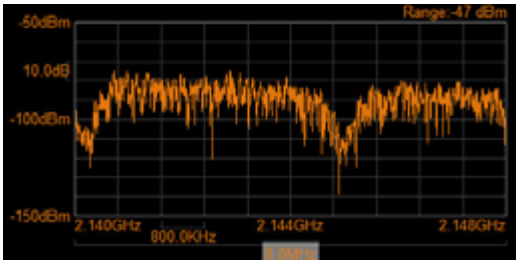
  DirectX 9.0c supported

- **Network**
  - -10/100 Mbps network card, 10/100/1000Mbps network card(Recommend)
  - 802.11 b/g Wireless network card, 802.11b/g/n Wireless network card(Recommend)

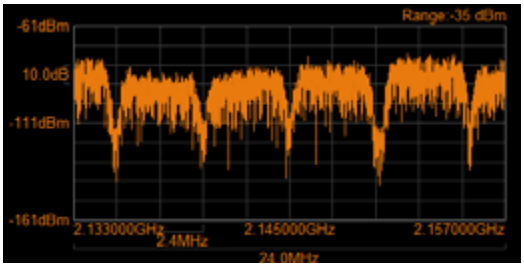
1.3 / OPTIONAL UPGRADE

- **Bandwidth**

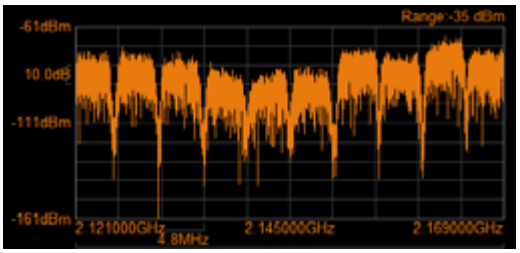
  - 8M Bandwidth(Default) : User can capture 8M Band Width.
  - 24M / 48M / 56M Band Width(Optional) : User can capture Wide 24M /48M /56M Band Width.



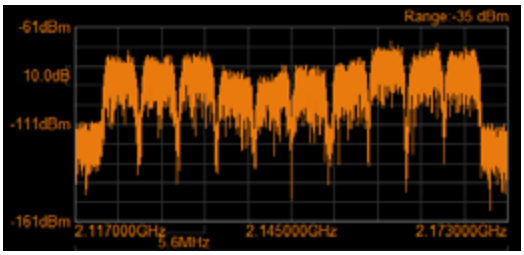
8M



24M



48M



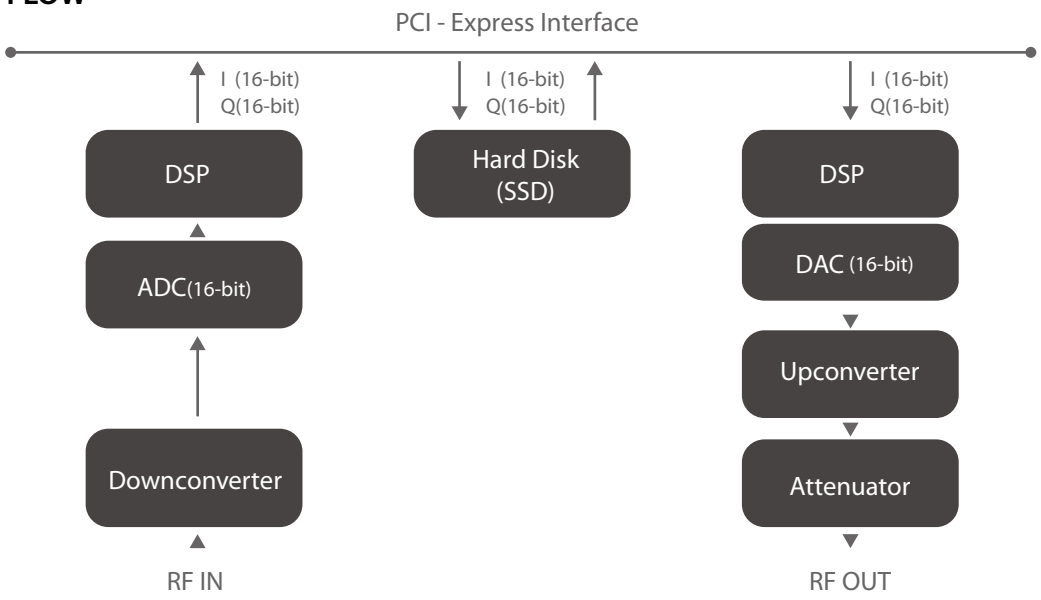
56M

- **External SSD Hard disk (Optional)**

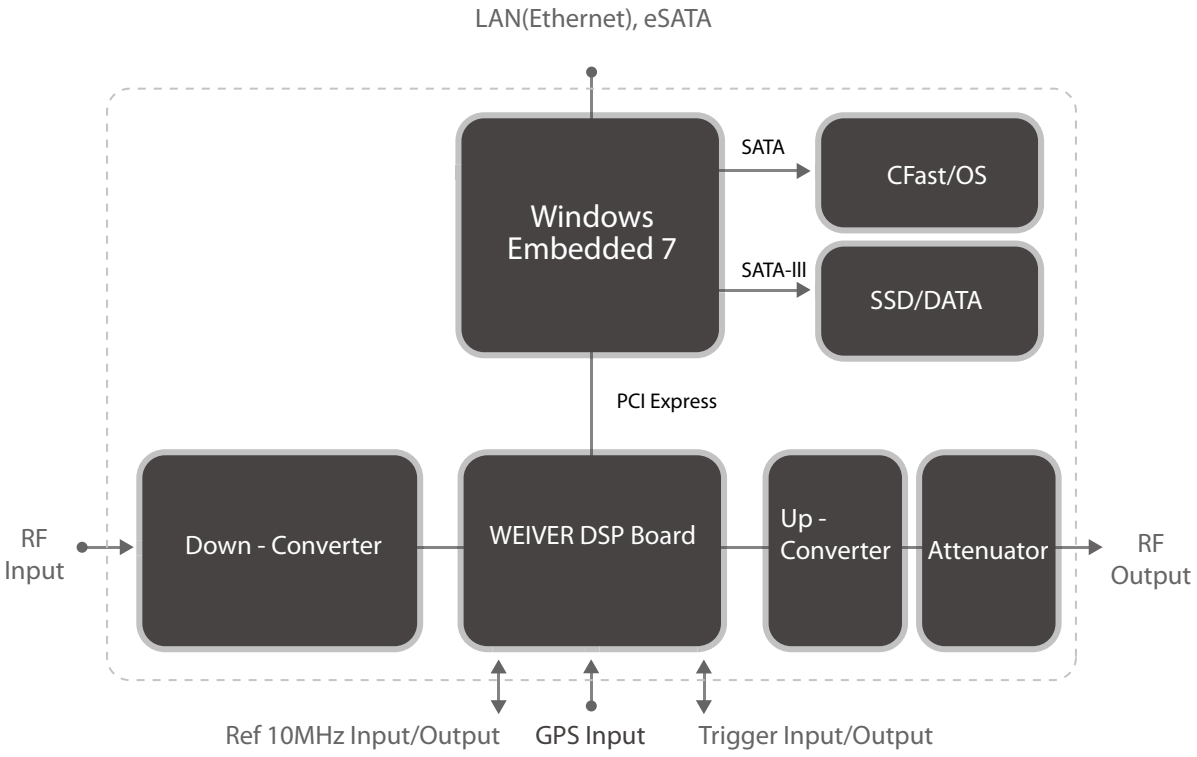
  - Size : 512 GB / 1TB
  - Read Speed : 538MB / Sec(Max.)
  - Write Speed : 408 MB / Sec(Max.)
  - TRIM : Yes

  * SSD option is good for real time capture or backup for captured Date.

1.4 / DATA FLOW



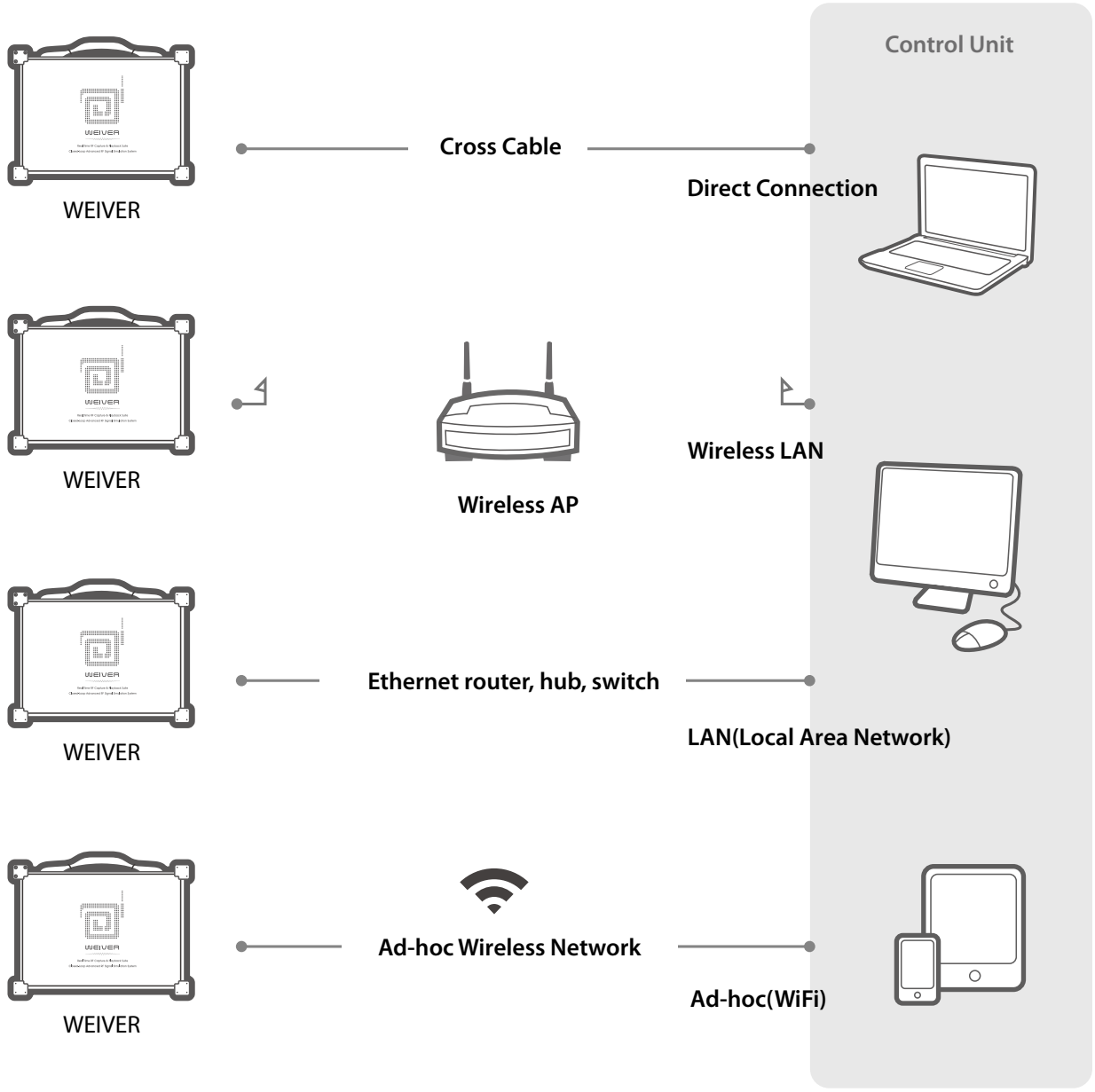
1.5 / SCHEMATIC DIAGRAM



IQ data type stored in SSD

- I : signed 16-bit integers
- Q : signed 16-bit integers
- I0, Q0, I1, Q1, …, In, Qn

1.6 / CONTROL CONFIGURATION (RECOMMENDED)



1.7 / WEIVER 2.0 SPEC

- Capture Mode

Frequency

Frequency band	HF HF_Low Noise	48MHz to 2.7GHz
	LF	0.1MHz to 48MHz
Real time bandwidth		56 MHz max. (Arbitrary variable BW, 1Hz step)
Frequency resolution		1Hz min.
Resolution bandwidth		3 KHz, 5 KHz, 10 KHz, 20 KHz
Warm-up time		30 minutes (typ.)
Freq. Stability vs. Temp.		±20 ppb max.
Aging per day		±1 ppb max.
Aging per Year		±50 ppb max.

Spectral Purity

Phase Noise@1 KHz offset	
LF	≤ -100 dBc/Hz (30 MHz)
HF	≤ -95 dBc/Hz (1 GHz) ≤ -90 dBc/Hz (2.7 GHz)
Phase Noise@10 KHz offset	
LF	≤ -105 dBc/Hz (30 MHz)
HF	≤ -100 dBc/Hz (1 GHz) ≤ -95 dBc/Hz (2.7 GHz)

Noise Figure

Noise Figure(1GHz)	HF HF_Low Noise LF	< 7 dB (Gain 50 dB) < 3 dB (Gain 50 dB) < 7 dB (Gain 50 dB)

Amplitude

Input Dynamic Range(CW tone) (RBW 3KHz)	HF HF_Low Noise LF	+10 ~ -135 dBm -30 ~ -139 dBm +10 ~ -120 dBm
Input level Resolution		0.1dB
Input Level Accuracy		±1 dB max.
Gain Range	HF HF_Low Noise LF	-15 ~ +50 dB (min. 1 dB step) +25 ~ +50 dB (min. 1 dB step) -20 ~ +35 dB (min. 1 dB step)

IF band

ADC Resolution	16 bits
Sampling rate	200 MS/s
IF Frequency	150 MHz

Storage

Storage(default)	512 GB
Storage time (BW 8 MHz)	180 minutes
Storage time (BW 24 MHz)	60 minutes
Storage time (BW 48 MHz)	30 minutes

RF Input

RF input port	HF HF_Low Noise	50ohm, N type female, DC-cpl
	LF	50ohm, BNC female, DC-cpl
Max. DC input	±25 VDC max.	

Environment & Power

Operating temperature	0 to +50 ℃
Relative humidity	90%
Storage temperature	-20 to +70 ℃
Power Consumption	70W

- Play Mode

Frequency

Frequency band	0.1 to 2700 MHz
Real time bandwidth	56MHz max. (Arbitrary variable BW, 1Hz step)
Frequency resolution	1Hz min.
Warm-up time	30 minutes (typ.)
Freq. Stability vs. Temp.	±20 ppb max.
Daily Aging	±1 ppb max.
Aging (PER year)	±50 ppb max.

Spectral Purity

Phase Noise@1 KHz offset	≤ -100 dBc/Hz (30 MHz) ≤ -95 dBc/Hz (1 GHz) ≤ -90 dBc/Hz (2.7 GHz)
Phase Noise@10 KHz offset	≤ -105 dBc/Hz (30 MHz) ≤ -100 dBc/Hz (1 GHz) ≤ -95 dBc/Hz (2.7 GHz)

Spurious Responses

2nd Harmonic	≤ -50dBc
3rd Harmonic	≤ -60dBc
other	≤ -60dBc

RF Output Characteristics

Gain range	-30 ~ +30dB (Input Level Basis)
Amplitude resolution	0.1dB step (Min.)
Amplitude accuracy	±1dB
Power	+3 dBm max.(48 to 2700 MHz) +10 dBm max.(0.1 to 48 MHz)

RF Output

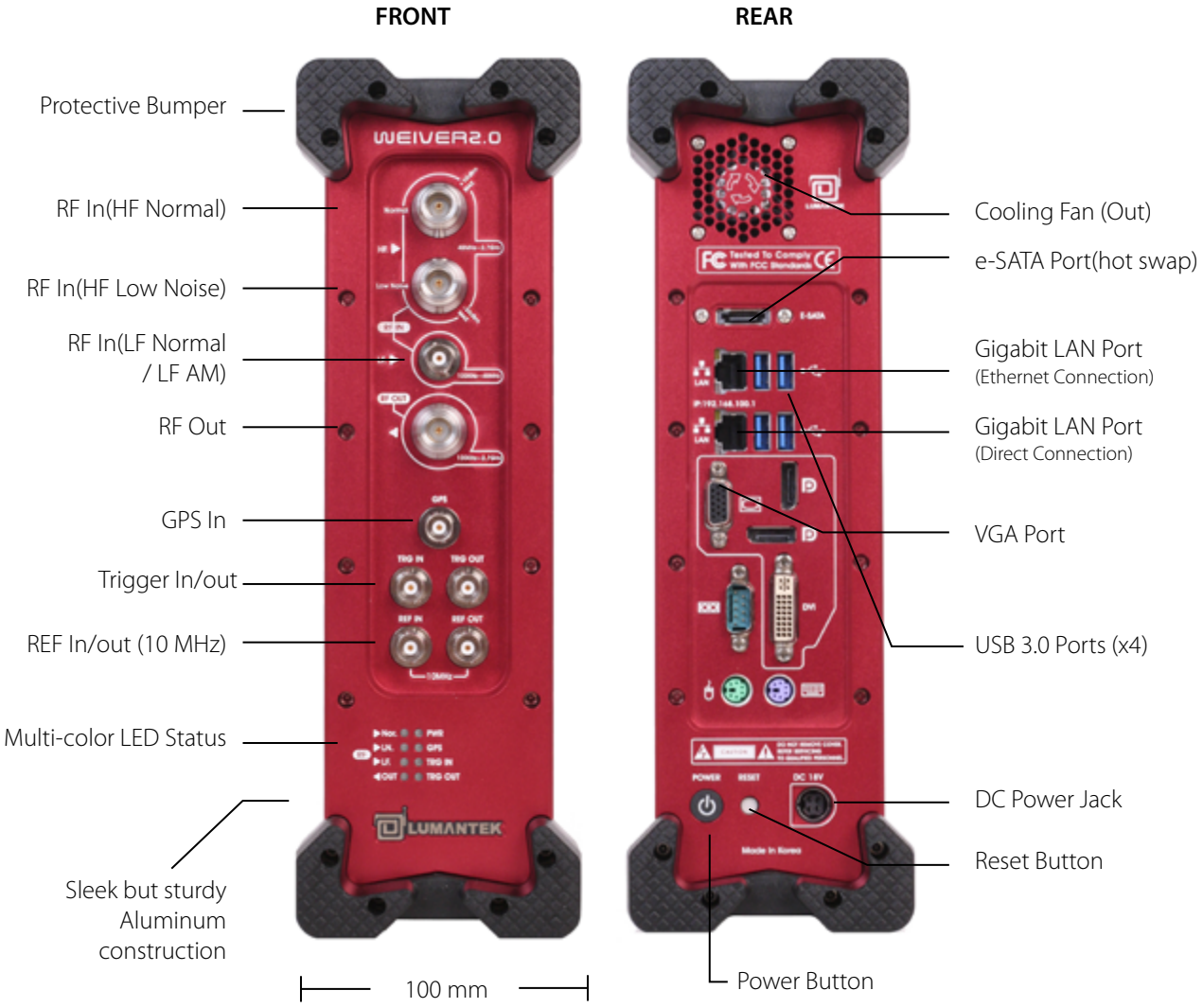
RF output port	50ohm, N type female, DC-cpl
Max. DC input	±25 VDC max.
Max. reverse RF power	1 W (Max.)

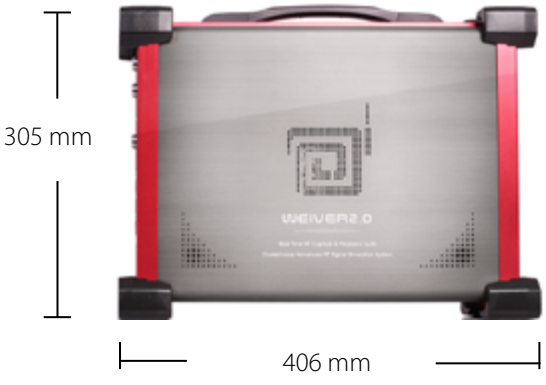
Environment

Operating temperature	0 to +50 ℃
Relative humidity	90%
Storage temperature	-20 to +70 ℃

2. WEIVER 2.0 / Product Description

2.1 / WEIVER 2.0 COMPONENT





2.2 / WEIVER 2.0 Product Configuration

- **Basic Component**

WeiverEX Program
WEIVER Operation Manual
WEIVER Test Report

- **Optional Component**

2.3 / Installation precautions

This section describes safety precautions that users shall be aware of during the system installation and operation. Not complying such precautions may result in serious harm or personal injuries. . For that reason, please keep all details here in mind before installing or using the WEIVER 2.0.
Please carefully read the followings for safe use of Weiver 2.0

- General Precautions

- Must be operated and maintained free of dust or dirt.
- The cover should be securely fastened.
- Securely stow all the cables, external antennas, external SSD or any other tools away in a safe place after its use.
- Avoid wearing loose, draping clothing, and dangling jewelry when using WEIVER 2.0.
- Do not open the WEIVER 2.0 case. Doing so may void the warranty and LUMANTEK takes no responsibility for the damages caused by such action. Should you be experiencing performance issues, please contact your local dealer for assistance.

- Power Precautions

- Make sure if it may cause overload in wiring when you connect the power source.
- Avoid wearing necklaces or watches when connecting the system to power source. These may cause electronic shocks to the system.
- Avoid operating on a wet floor out in the open (e.g., raining). Make sure the power extension cable is in a good condition (e.g., not worn out).

- Disconnect the system from power source before hardware installation, rub or contact on the metal surface of the system to discharge statics from your body.
- Note: Manufacturer is not responsible for damages caused by using or replacing inappropriate components or not authorized services.
- Supplying power during installation may cause serious damages to the system and personal injuries.

- AC Power

- This unit comes with the AC power cord, grounding connection is necessary.
- In the event of a fire, please disconnect the system from power source.

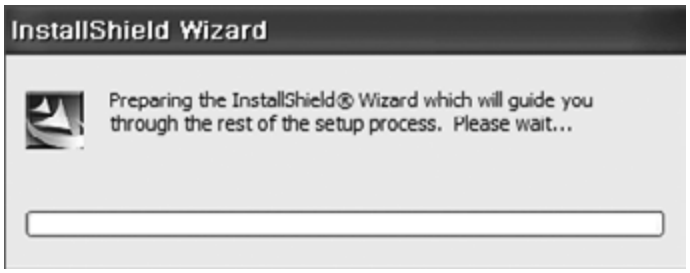
3. WEIVER 2.0 / SYSTEM OPERATION

3.1 / WEIVER Operation

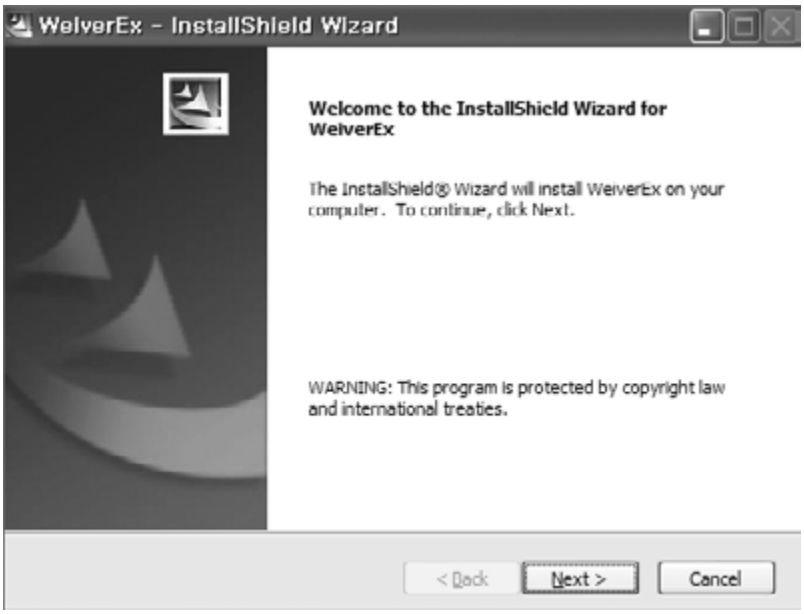
The WEIVER must be powered on, connected to a laptop or desktop PC that is installed with both Microsoft Windows OS and the WeiverEX program. No need to install an additional program since WEIVER already has been installed by itself. In case of updating a program, set a monitor, a keyboard and a mouse on WEIVER before starting update. If you have no those equipments, use remote control desktop connection of Window OS in your laptop or desktop.

3.2 / Weiver_EX Program Installation

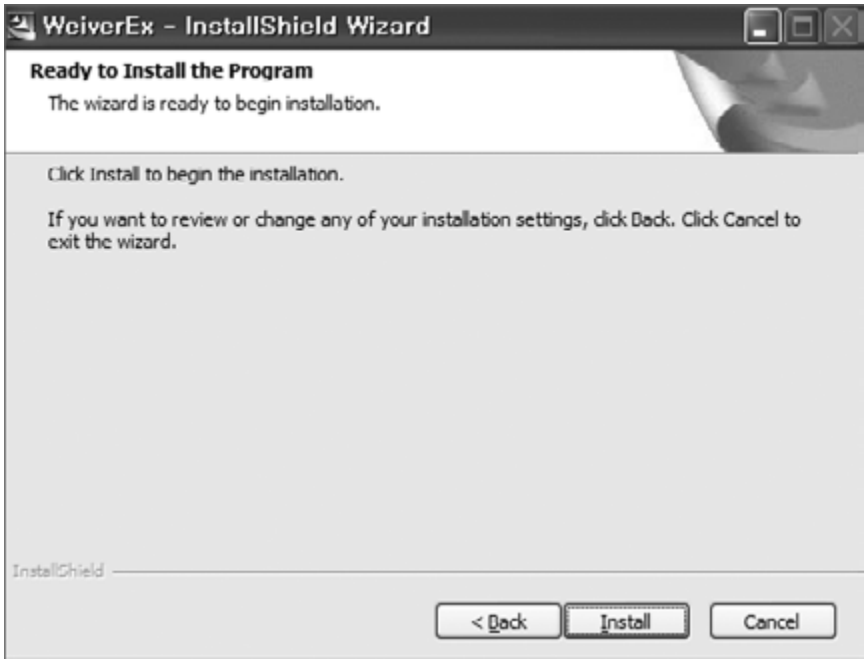
Please visit LUMANTEK online Download Center at http://www.lumantek.com/support/download.html to download 'Weiver_EX' program. Double-click on the program icon will initiate the installation. Click on 'Next' to proceed the 'Weiver_EX' installation process.


InstallShield Wizard
Preparing the InstallShield® Wizard which will guide you through the rest of the setup process. Please wait...

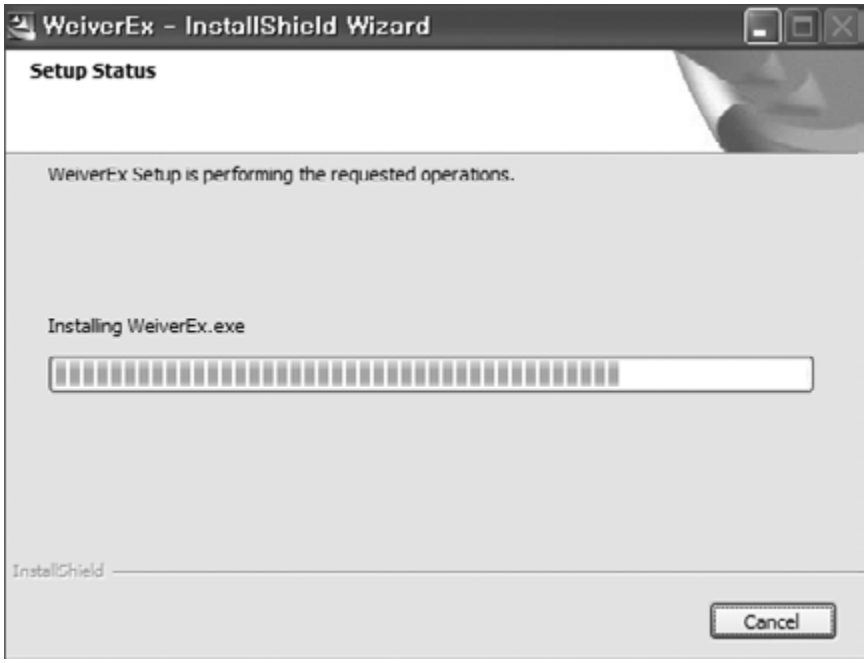
Click the Next button to proceed with the WeiverEX installation process.


WeiverEx - InstallShield Wizard
Welcome to the InstallShield Wizard for WeiverEx
The InstallShield® Wizard will install WeiverEx on your computer. To continue, click Next.
WARNING: This program is protected by copyright law and international treaties.
< Back
Next >
Cancel

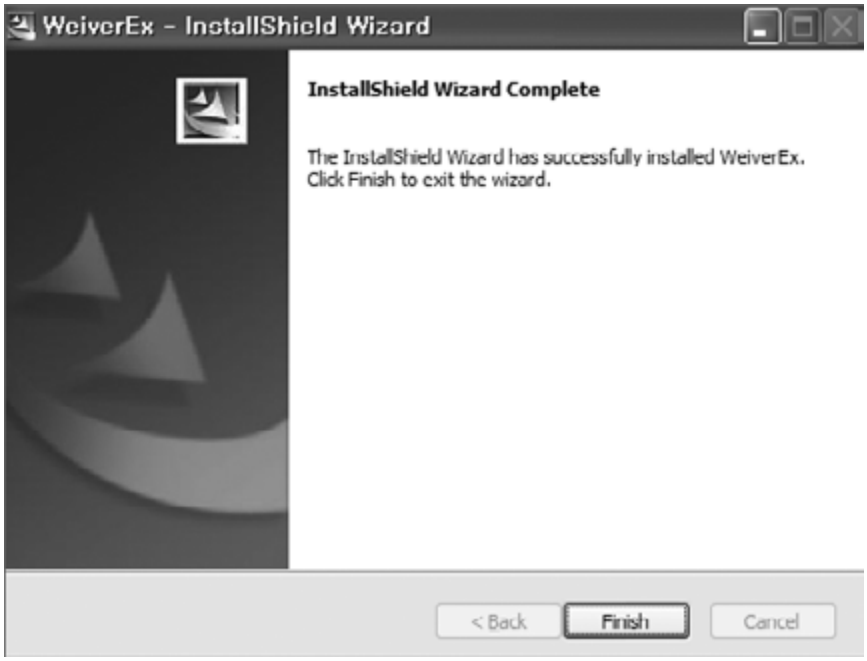
Click 'Install' to begin installation.


WeiverEx - InstallShield Wizard
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

The 'Weiver_EX' program installation status will be show as pictures below with a progress bar.



The 'Weiver_EX' installation is now completed; click 'Finish' to exit the program.

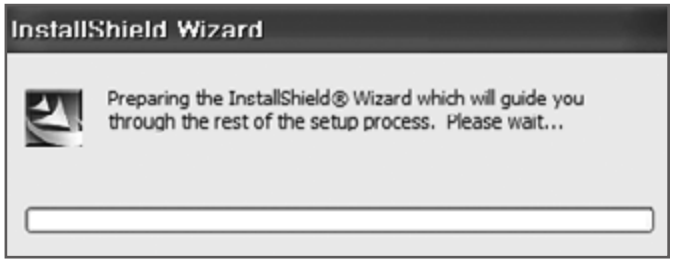

WeiverEx - InstallShield Wizard
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed WeiverEx. Click Finish to exit the wizard.
< Back
Finish
Cancel

3.3 / Weiver_EX Program Upgrade

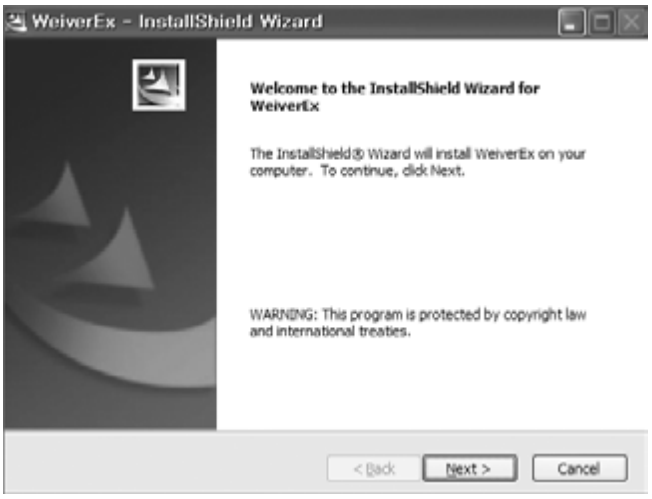
Please visit us at http://www.lumantek.com/support/download.html to download 'Weiver_EX' program. Once downloaded, double-click to upgrade and select 'Yes' to uninstall previous version of 'Weiver_EX'.

WeiverEx - InstallShield Wizard
This product is already installed on the system.
If you wish to install it again, you need to uninstall the existing copy first.
Do you want to uninstall the existing copy?
Yes
No

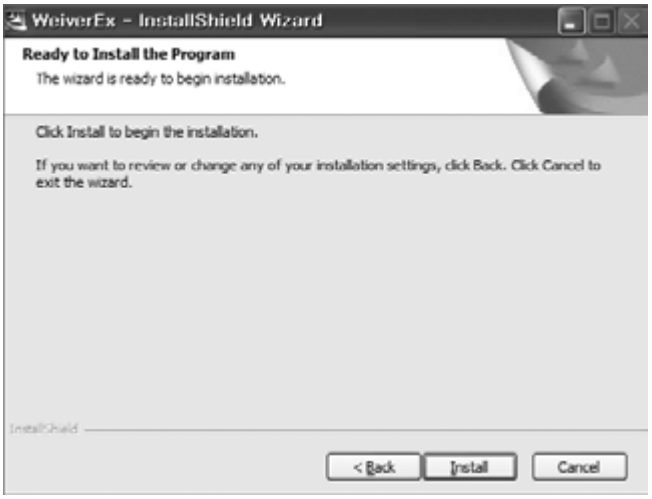
Once uninstallation is finished, double-click WeiverEX_Setup.exe to install the program.


InstallShield Wizard
Preparing the InstallShield® Wizard which will guide you through the rest of the setup process. Please wait...

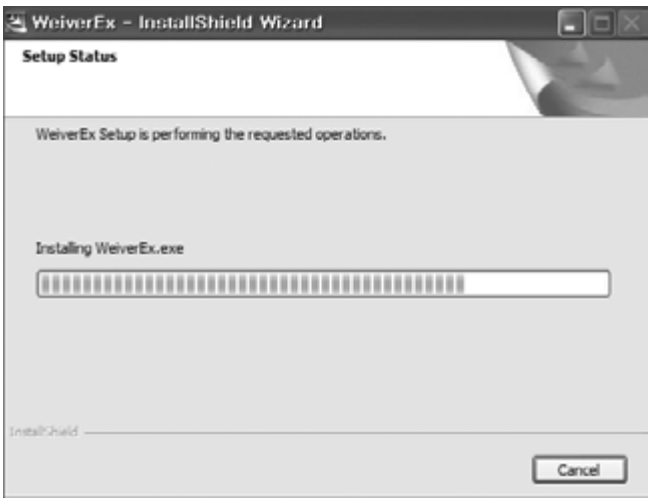
Click the Next button to proceed with the WeiverEX installation process.


WeiverEx - InstallShield Wizard
Welcome to the InstallShield Wizard for WeiverEx
The InstallShield® Wizard will install WeiverEx on your computer. To continue, click Next.
WARNING: This program is protected by copyright law and international treaties.
< Back
Next >
Cancel

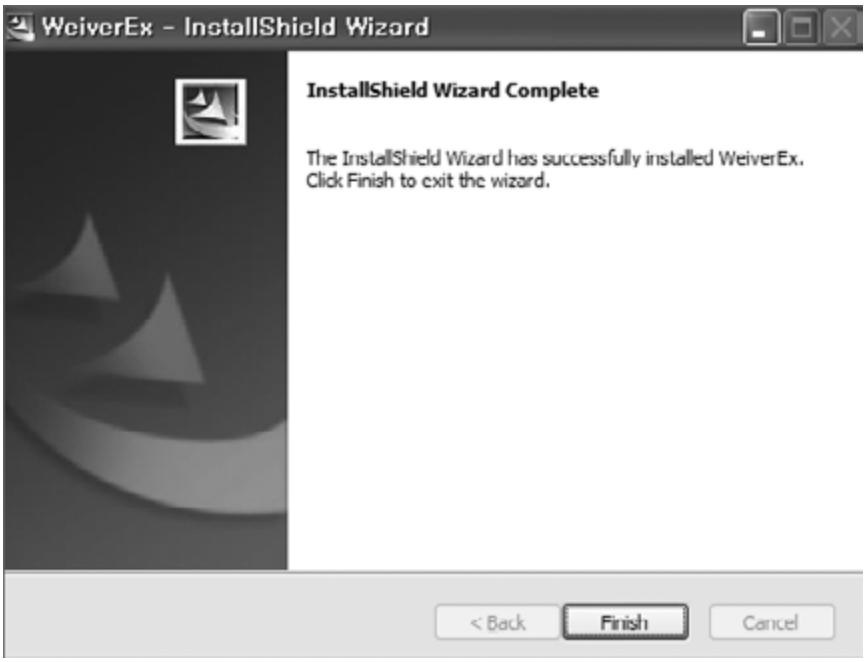
Click the Install button to begin the installation.


WeiverEx - InstallShield Wizard
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

The WeiverEX program is being installed as shown with the status progress bar.

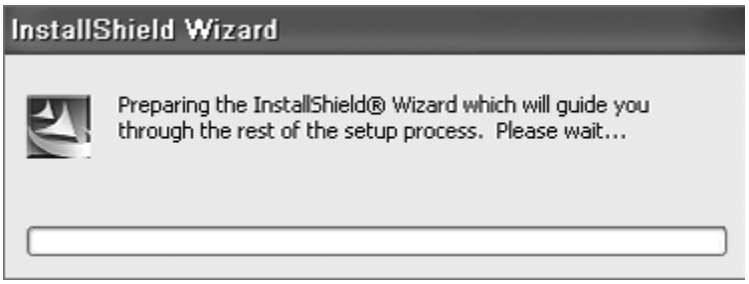


The WeiverEX installation is now complete. Click the Finish button to close the Installation window.

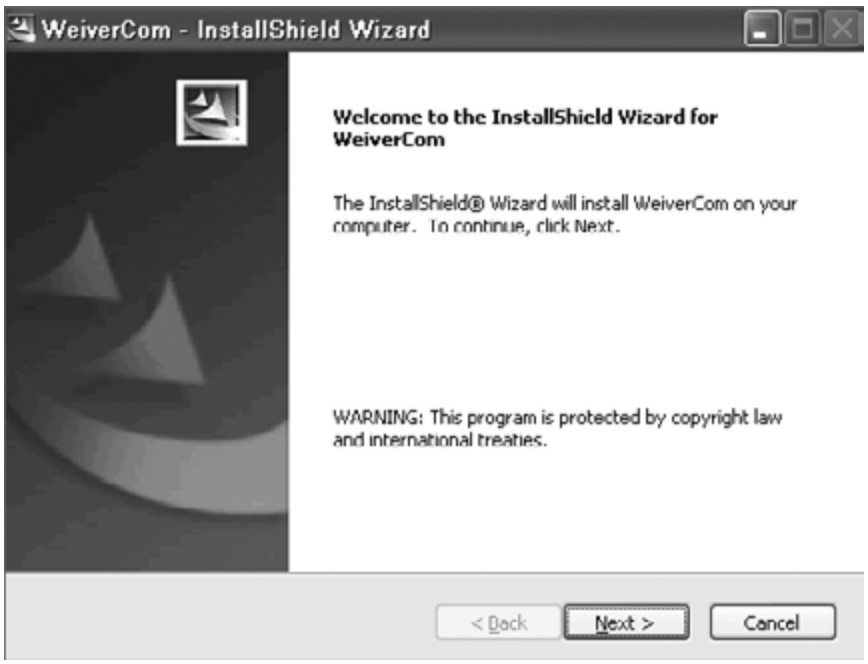


3.4 / WeiverCom Installation

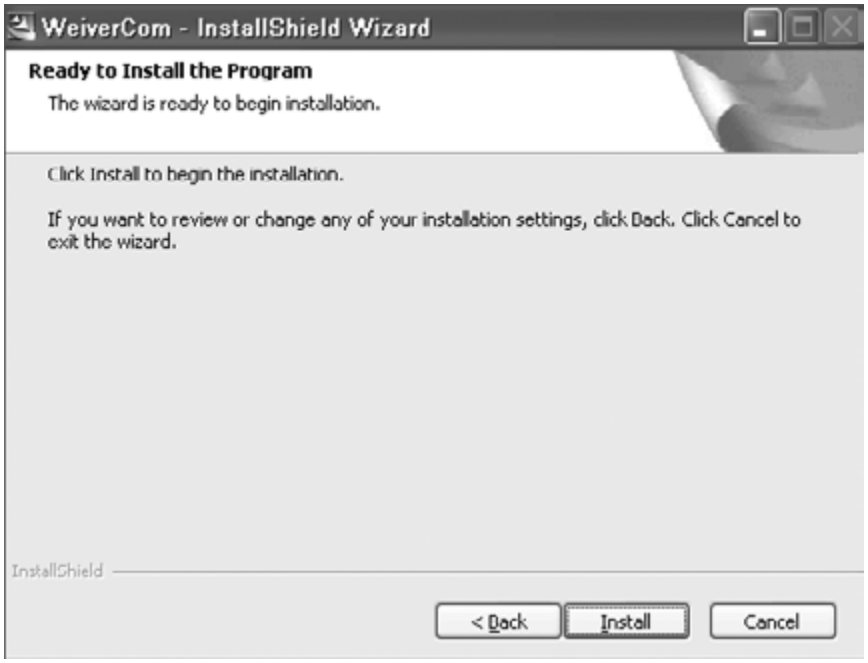
Go to the LUMANTEK homepage Download Center (http://www.lumantek.com/support/download.html) to download the WeiverCom program. Once downloaded, double-click to initiate installation.


InstallShield Wizard
Preparing the InstallShield® Wizard which will guide you through the rest of the setup process. Please wait...

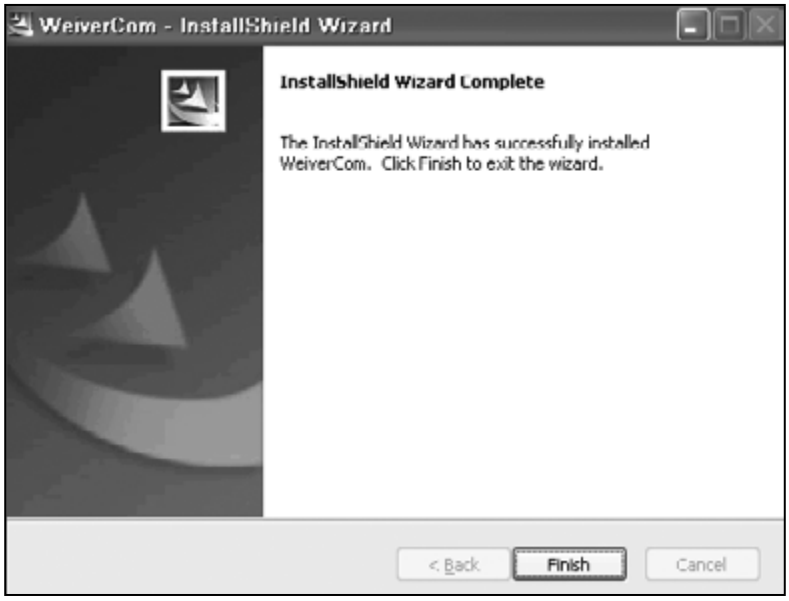
Click the Next button to proceed with the WeiverCom installation process.


WeiverCom - InstallShield Wizard
Welcome to the InstallShield Wizard for WeiverCom
The InstallShield® Wizard will install WeiverCom on your computer. To continue, click Next.
WARNING: This program is protected by copyright law and international treaties.
< Back
Next >
Cancel

Click 'Install' to begin installation.


WeiverCom - InstallShield Wizard
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

The 'Weiver_EX' installation is now completed; click 'Finish' to exit the program.

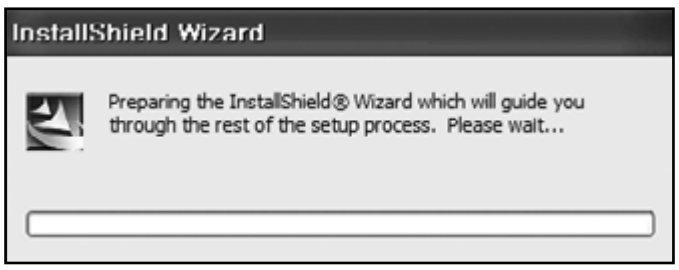

WeiverCom - InstallShield Wizard
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed WeiverCom. Click Finish to exit the wizard.
< Back
Finish
Cancel

3.5 / WeiverCom Upgrade

Please visit us at http://www.lumantek.com/support/download.html to download 'Weiver_COM' program. Once downloaded, double-click to upgrade and select 'Yes' to uninstall previous version of 'Weiver_COM'.

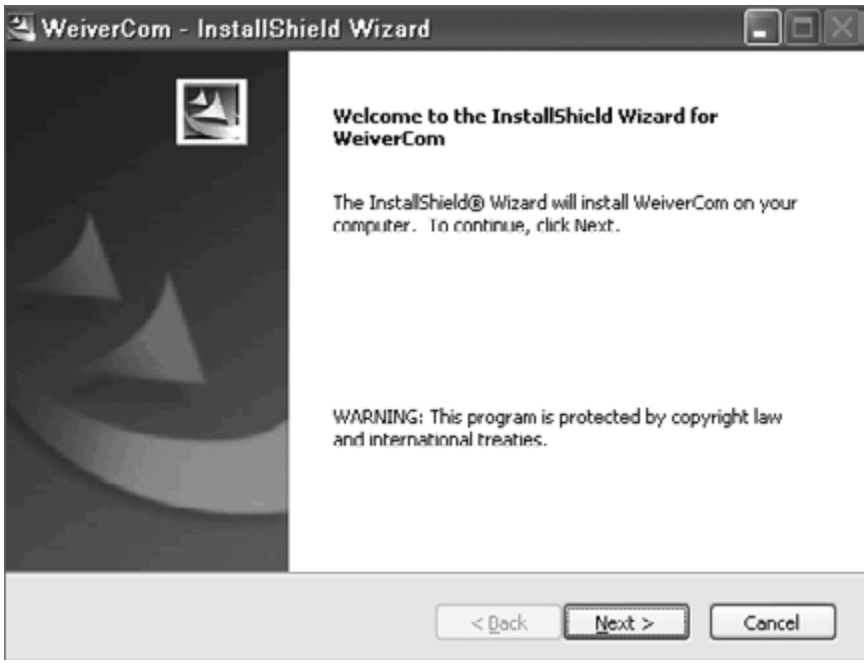
WeiverExCom - InstallShield Wizard
This product is already installed on the system.
If you wish to install it again, you need to uninstall the existing copy first.
Do you want to uninstall the existing copy?
Yes
No

Once uninstallation is finished, double-click WeiverCom_Setup.exe to install the program.

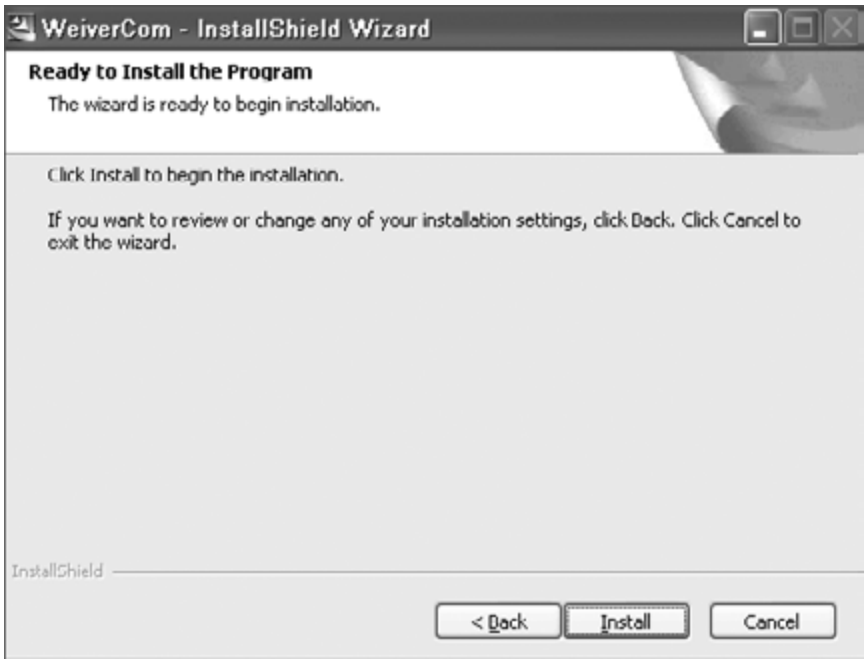

InstallShield Wizard
Preparing the InstallShield® Wizard which will guide you through the rest of the setup process. Please wait...

* The WeiverCom Program is initially installed. When you first use this product, no need to install the program additionaly.

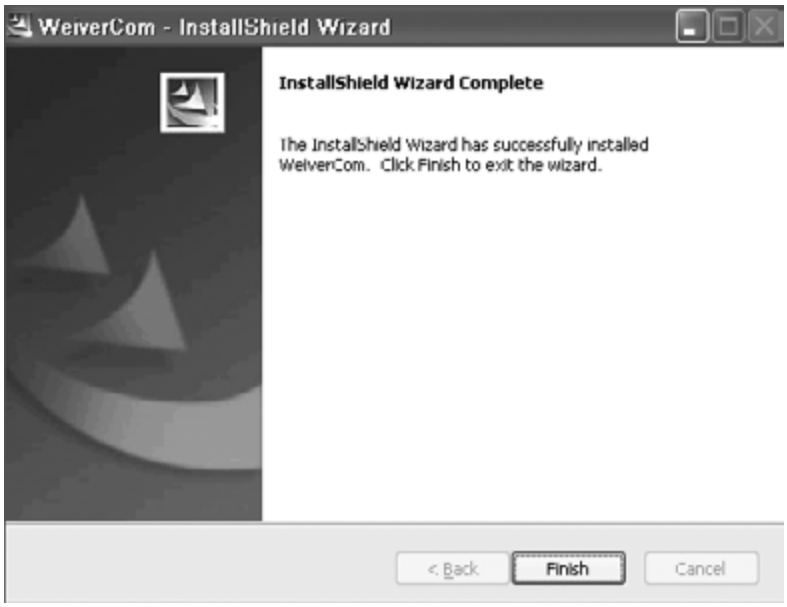
Click the Next button to proceed with the WeiverCom installation process.


WeiverCom - InstallShield Wizard
Welcome to the InstallShield Wizard for WeiverCom
The InstallShield® Wizard will install WeiverCom on your computer. To continue, click Next.
WARNING: This program is protected by copyright law and international treaties.
< Back
Next >
Cancel

Click the Install button to begin the installation.


WeiverCom - InstallShield Wizard
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

The WeiverCom installation is now complete; click the Finish button to close the Installation window.


WeiverCom - InstallShield Wizard
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed WeiverCom. Click Finish to exit the wizard.
< Back
Finish
Cancel

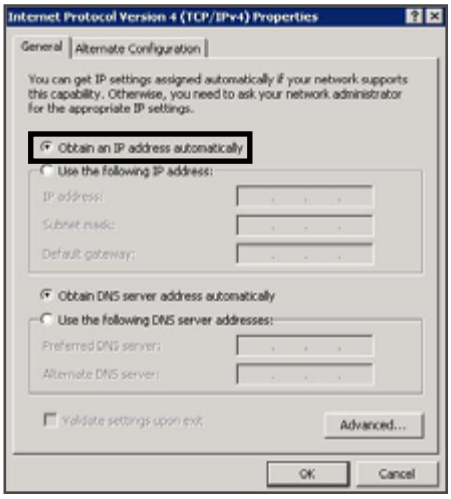
3.6 / EtherNet Connection Method

- DHCP is default settings for the WEIVER 2.0's LAN connection. The WEIVER 2.0 automatically receives the IP address from the Network immediately.
- Please access to the 'Internet Protocol (TCP/IP) Properties' menu in both PC and the player, make sure 'Obtain an IP address automatically' has been selected

● **Laptop and Desktop PC: TCP/IP Configuration**

Internet Protocol (TCP/IP) Properties
General
Alternate Configuration
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

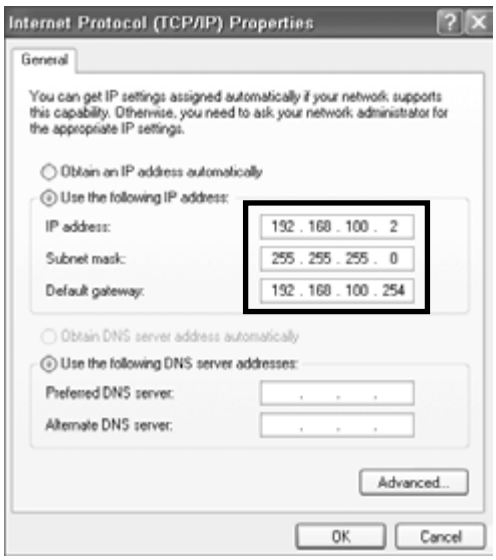
● **WEIVER TCP/IP Configurations**


Internet Protocol Version 4 (TCP/IPv4) Properties
General
Alternate Configuration
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Validate settings upon exit
Advanced...
OK
Cancel

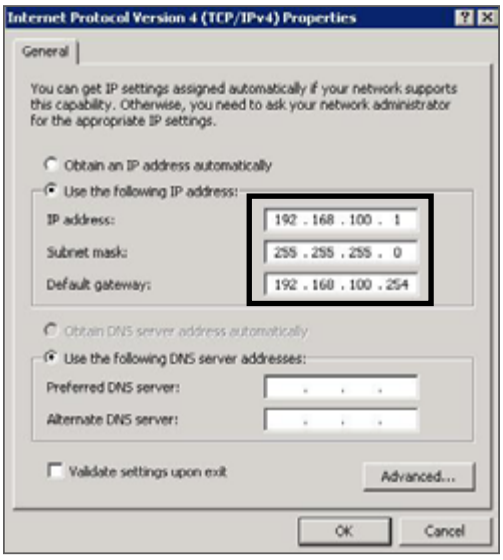
3.7 / Cross Cable Connection Method(use GIgabit LAN port : see page17-no.⓯)

This section is to show cross cable connection between PC and the Player by using static IP address. Please note that the first three columns of the static IP address for both PC and the player must be identical. To control WEIVER Player 2.0 using fixed IP, move to the WEIVER Player 2.0 network setting menu and set IP address manually.

- **Laptop and Desktop PC Configuration**


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address: 192 . 168 . 100 . 2
Subnet mask: 255 . 255 . 255 . 0
Default gateway: 192 . 168 . 100 . 254
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

- **WEIVER Configuration**


Internet Protocol Version 4 (TCP/IPv4) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address: 192 . 168 . 100 . 1
Subnet mask: 255 . 255 . 255 . 0
Default gateway: 192 . 168 . 100 . 254
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Validate settings upon exit
Advanced...
OK
Cancel

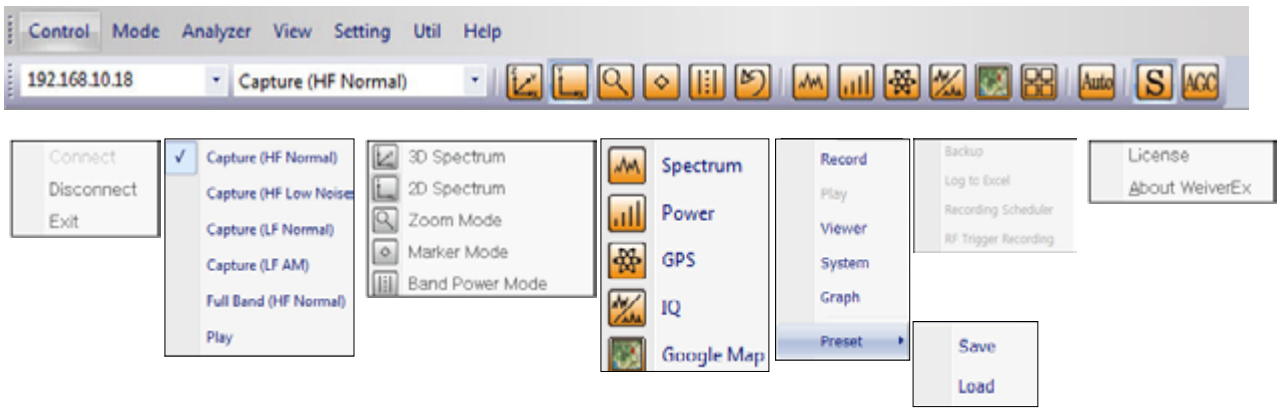
Now, the WeiverEX program can be initiated to access and monitor the WEIVER operations

3.8 / WeiverEX Operation

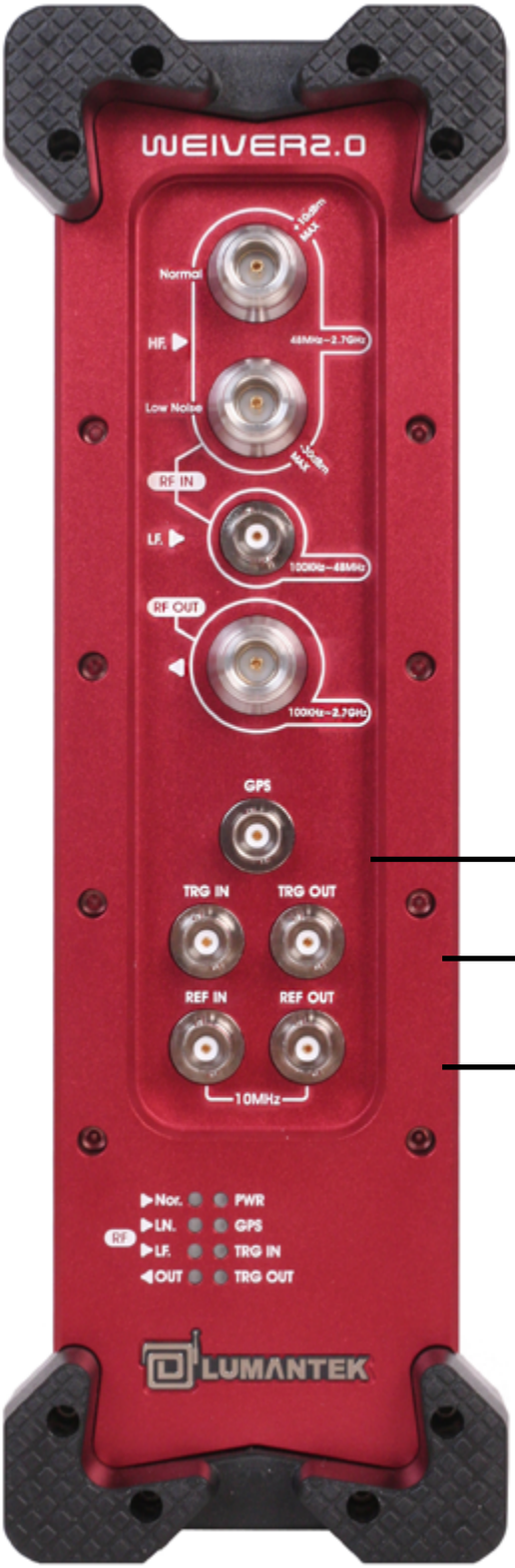
To use the latest version of the 'Weiver_EX program', please visit our S/W Download page at http://www.lumantek.com. You can find detailed features and functionalities of the 'Weiver_EX' program.

- WeiverEX Program

* The WeiverEX control menu and menu sub-structure is shown below



● **Front – RF Port / Ext Port**



1) RF IN : HF Normal, Full Band
Frequency : 48MHz ~ 2.7GHz => High Frequency
Range : +10dBm ~ -55dBm => High Power

2) RF IN : HF Low Noise
Frequency : 48MHz ~ 2.7GHz => High Frequency
Range : -30dBm ~ -55dBm => Low Power

3) RF IN : LF Normal
Frequency : 100KHz ~ 48MHz => Low Frequency
Range : +10dBm ~ -45dBmv

4) RF IN : LF AM
Frequency : 100KHz ~ 2MHz => Low Frequency, 2MHz Under
Range : +10dBm ~ -45dBm

5) RF Out : Frequency : 100KHz ~ 2.7GHz
100KHz ~ 48MHz : Max Power(+10dBm)
48MHz ~ 2.7GHz : Max Power(+3dBm)

GPS In : GPS Antena

Trg IN : Low(0V) or High(3.3V)

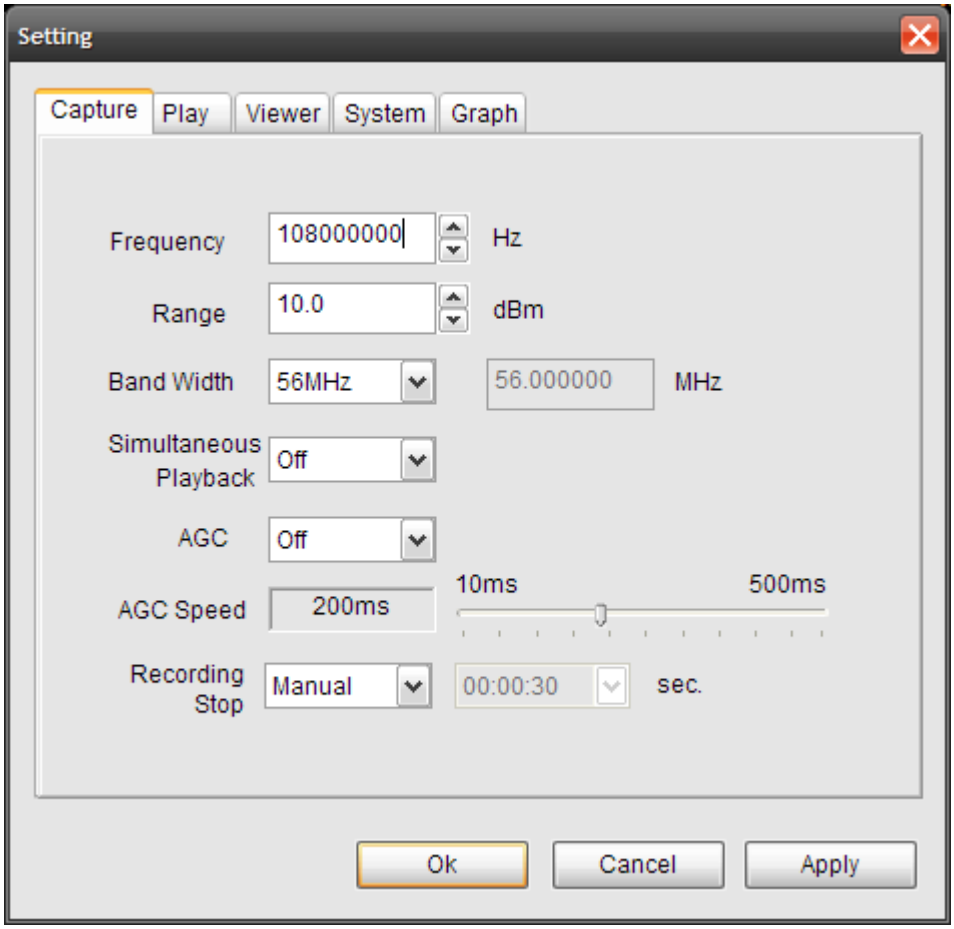
Trg OUT : Low(0V) or High(3.3V)

Ref IN : 10MHz

Ref OUT : 10MHz

● **Setting**

Within the Setting menu there are 4 unique tabs to choose from.



The first tab, Capture includes Frequency, Range, Bandwidth, Simultaneous Playback, AGC.

- Frequency : In the Preview or Capture Modes, the frequency can be controlled

- Range (appendix.) : Range features associated with the Capture Mode, the Auto Power Auto Adjustment feature can be activated to automatically adjust for optimal RF signal (weak or strong).

-Band Width : In the Preview or Capture modes, the bandwidth can be selected at either 8M, 24M, 48M. 56M and arbitrary bandwidth.

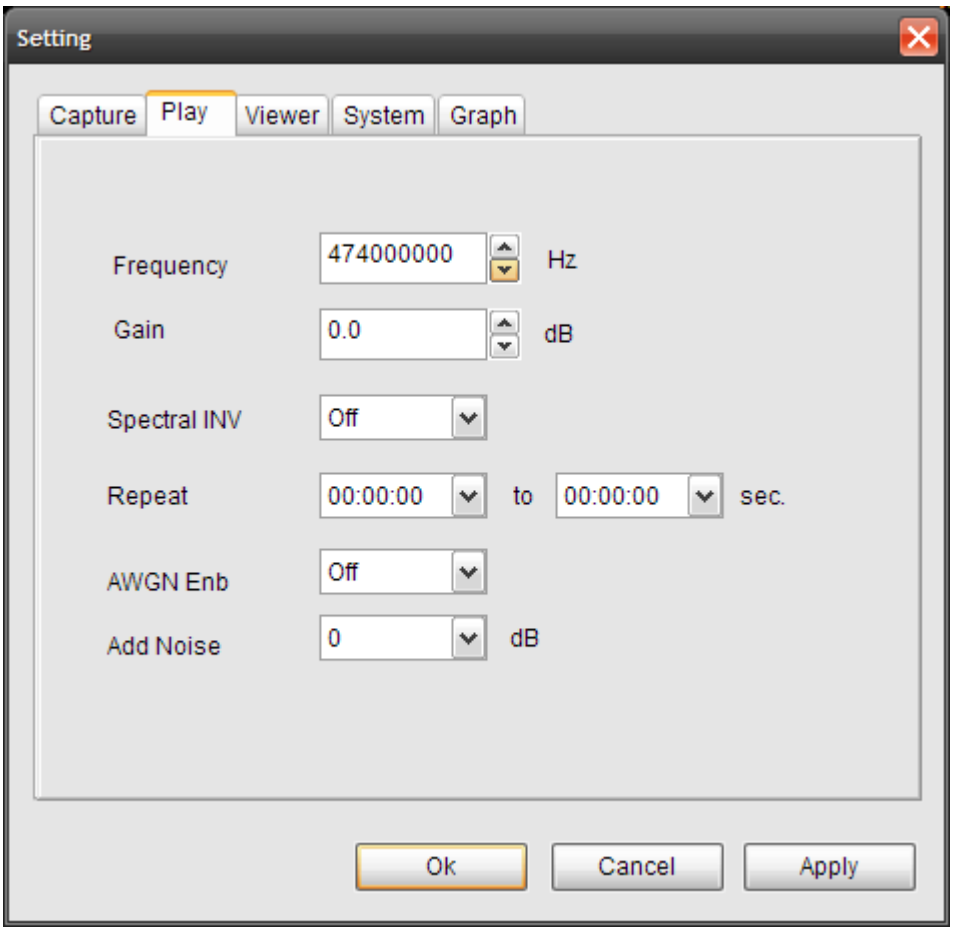
- Simultaneous Playback (Simultaneous Capture and Playback) S
When you run the capture status or the preview status, RF OUT port provides the function to make simultaneousness output so you can measure the actual quality of the signal. What you're seeing is what you're recording.

- AGC [Automatic Gain Control] AGC
In cases of Fields the input signal power can not be predicted or Drive tests the signal power is irregular, AGC will find the signal power automatically and capture a reliable signal by operation of the attenuator.

-AGC Speed : AGC interval can be set to 10ms ~ 500ms.

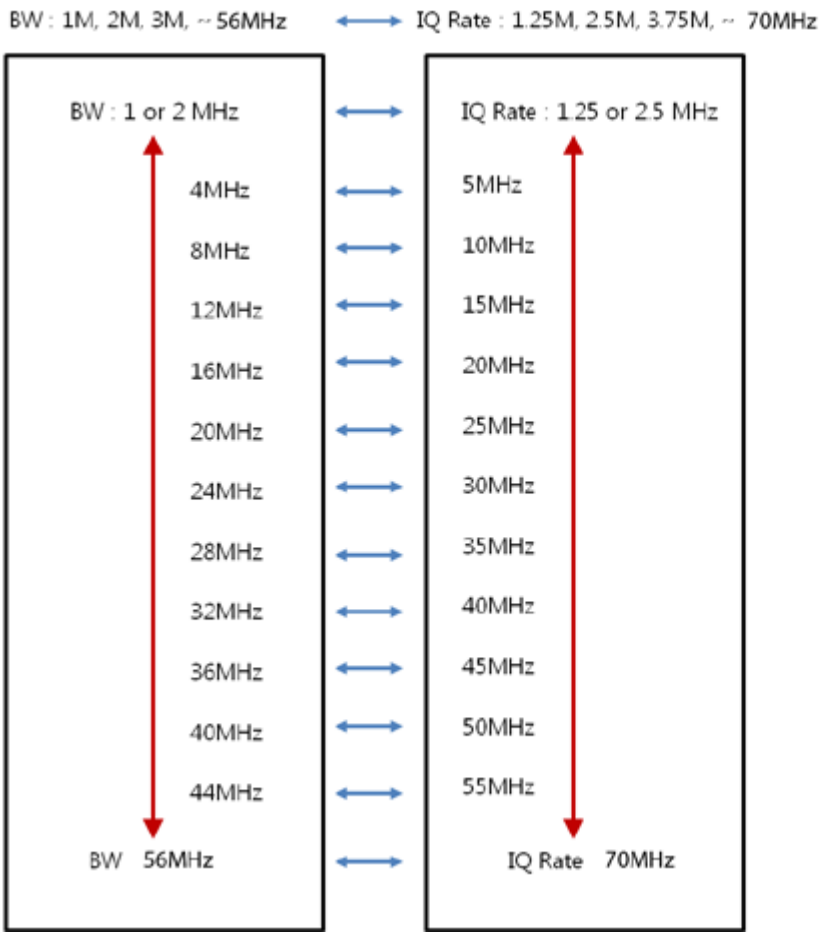
- Recording Stop : Two options, Manual and Auto, are available. In Manual, a user needs to push 'Start', 'Stop' button. In Auto, automatically stopped at user's pre-set time.

The second tab, Play includes Frequency, Gain, Spectrum INV and Repeat.

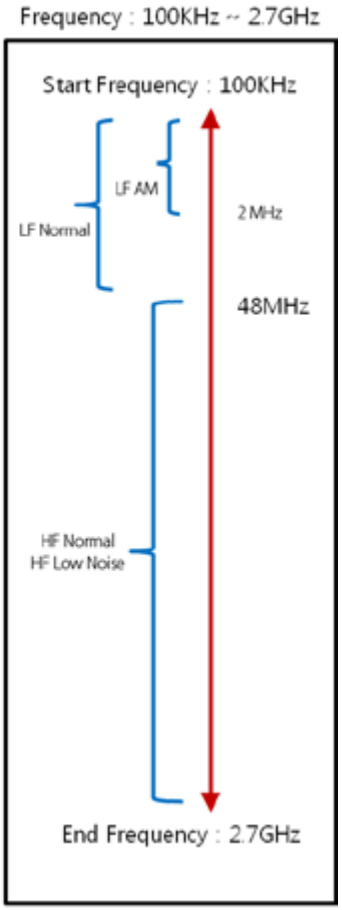


- Frequency: Support to Play the signal the user wants optionally by controlling RF Signal Center Frequency.
- Gain : When Playback is initiated, the RF signal can be amplified less than the captured RF signal or it can be increased more than the captured RF signal (Input RF signal power of -30dB to +30dB). Also during Playback, Gain 0 dB means that signals(Capture and Playback) power are equal. The maximum output signal can not exceed +10dBm.
- Spectral INV : Provide the function of inverting I/Q of the signal output.
- Repeat : Provide the function of output a specific section repeatedly on files captured.

* Record/Play BW(=IQ Rate*0.8), IQ Rate, Frequency



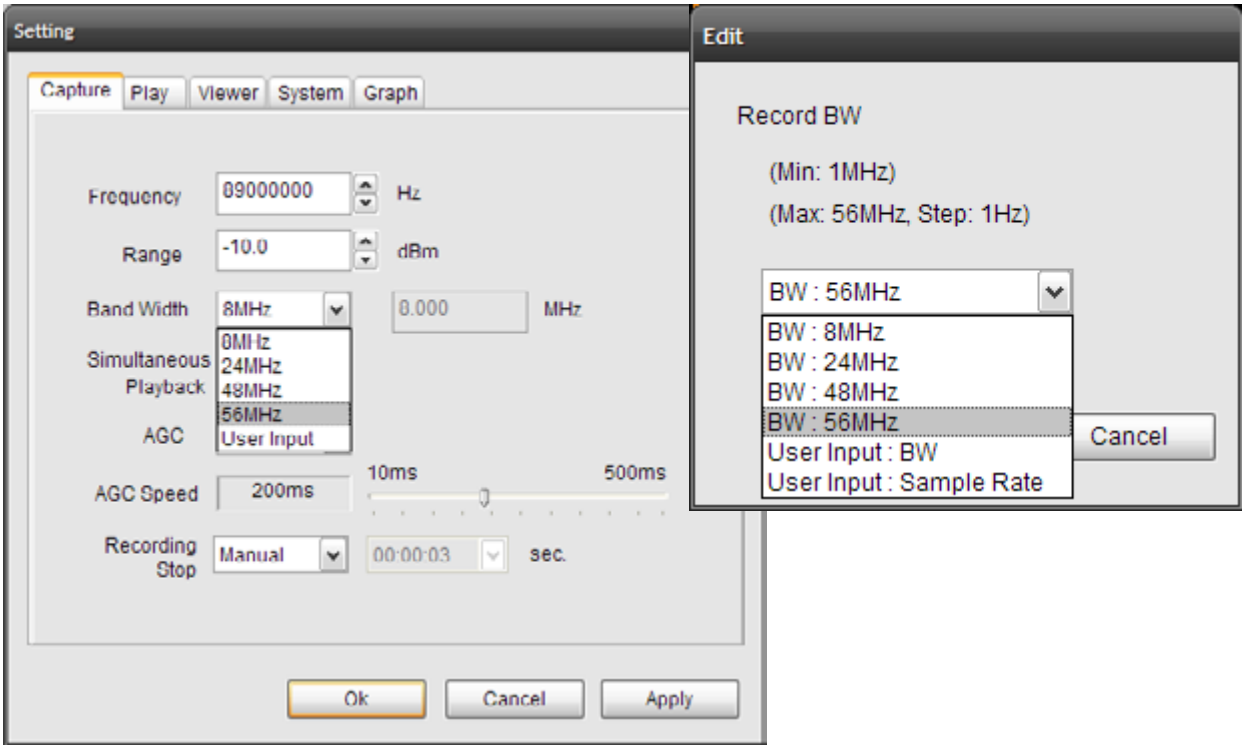
< Record/Play Bandwidth >



< Record/Play Frequency Range >

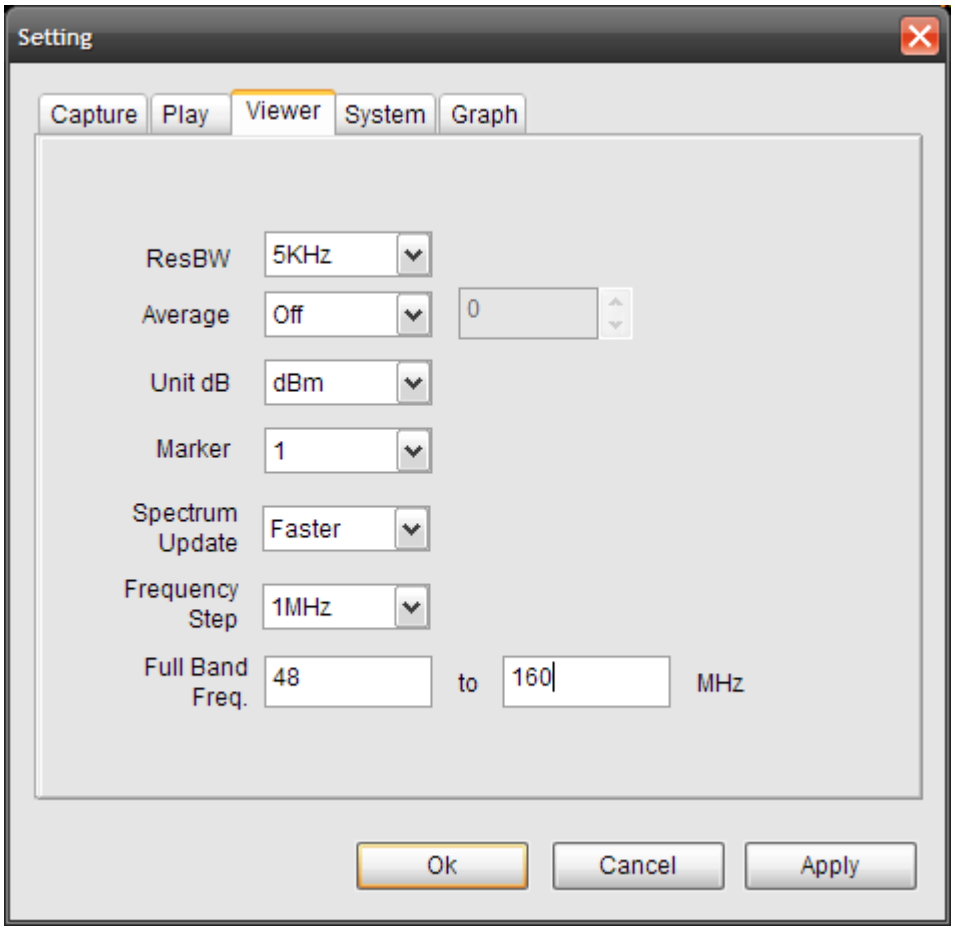
* Sample Clock

Band Width	1MHz	~	56MHz
Sample Clock	1.25MHz(= 1 250 000)		70MHz(= 70 000 000)
Size(1min)	1 250 000 x 4 x 60 = 300 000 000 Bytes = 286.1 MB #4 : I (2Bytes) and Q(2Bytes) #60 : 1 min		70 000 000 x 4 x 60 = 168 00 000 000 Bytes = 15.7 GB #4 : I (2Bytes) and Q(2Bytes) #60 : 1 min



The third tab, Viewer includes ResBW, Average, Unit dB and Marker.

- ResBW : The ResBW can be adjusted in the Spectrum View's Resolution. [3KHz, 5KHz, 10KHz, 20KHz]

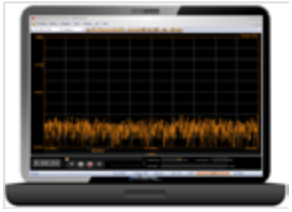


* Weiver IQ windowing (WeiverEx)

BandWidth : 1~56M

I Signaling

Q Signaling



* Weiver FFT (WeiverEx), Capture Mode - BandWidth : 24M(Sampling Clock 30M)

ResBW	Complex FFT Point	Sampling Clock(IQ Rate)
3KHz	10K Point	30MHz(= 3KHz X 10K Point)
5KHz	6K Point	30MHz(= 5KHz X 6K Point)
10KHz	3K Point	30MHz(= 10KHz X 3K Point)
20KHz	1.5K Point	30MHz(= 20KHz X 1.5K Point)

* Weiver FFT (WeiverEx), Capture Mode

BandWidth : 8M(Sampling Clock 10M)

ResBW	Complex FFT Point	Sampling Clock(IQ Rate)
3KHz	3.3K Point	10MHz(= 3KHz X 3.3K Point)
5KHz	2K Point	10MHz(= 5KHz X 2K Point)
10KHz	1K Point	10MHz(= 10KHz X 1K Point)
20KHz	0.5K Point	10MHz(= 20KHz X 0.5K Point)

* Weiver FFT (WeiverEx), Play Mode

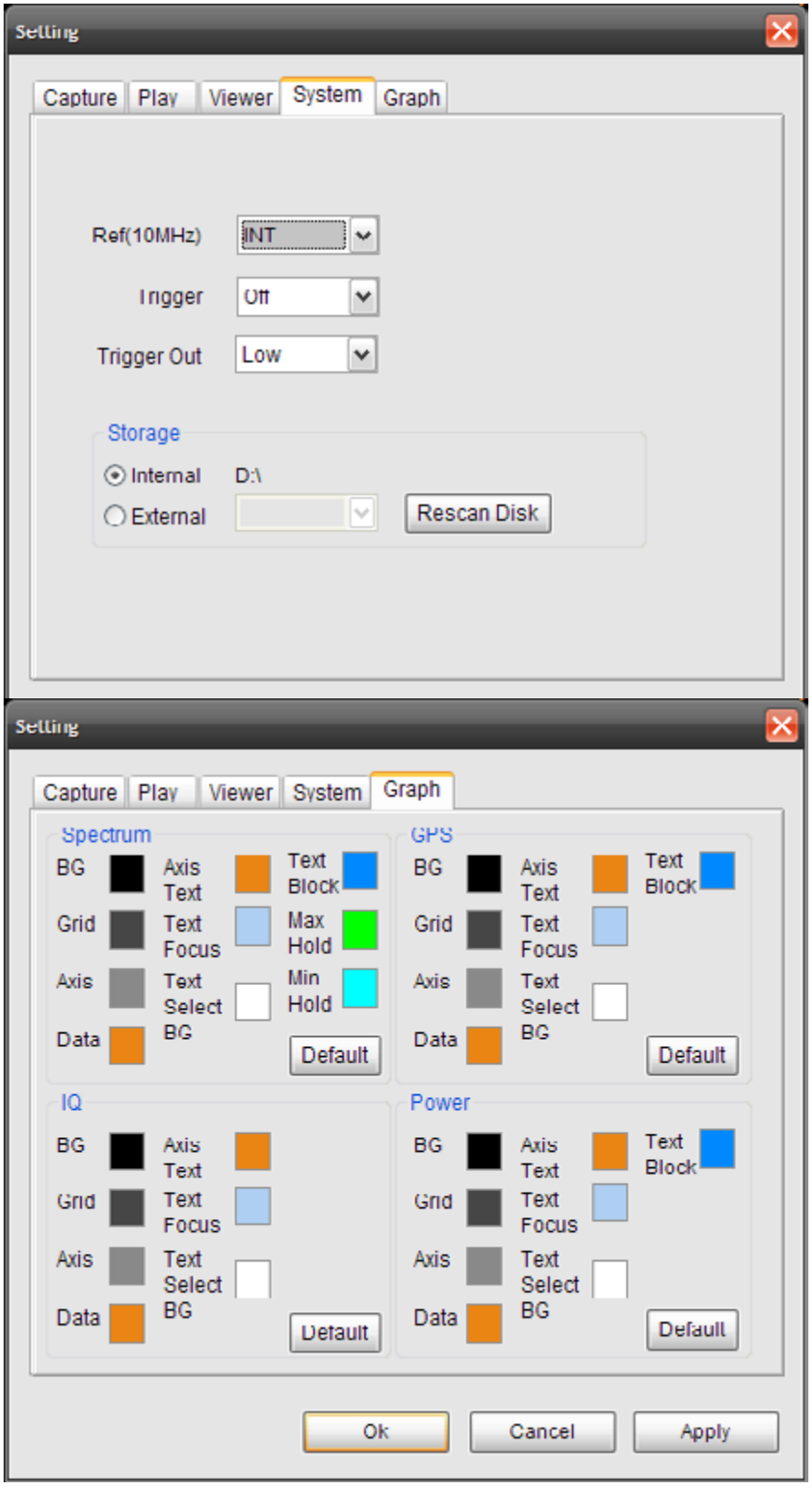
BandWidth : Same as ' Capture Mode " in both of 8M, 24M, 48M and 56M.

In Play Mode, IQ Rate is variable value in 1MHz to 60MHz, and FFT Point is also variable value.

- Average : The Average function has Exponential features in the Spectrum View.
- Unit dB : The RF Power of the unit can be changed in dBm, dBmV, dBuV individually by user's difference.
- Marker : Provides the function of measuring a signal power of marker point simultaneously up to 4 Makers.
- Spectrum Update : Five options, Fastest, Faster, Normal, Slower, Slowest are available and decide the screen update speed.

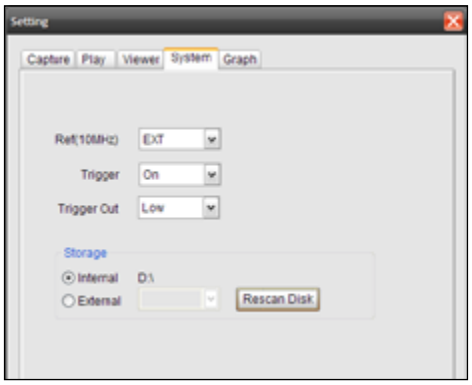
The forth tab, System includes Ref(10MHz), Trigger, Storage.

- Ref(10MHz) : Select the EXT external Clock for synchronizing with the PLL Clock by external clock signal input.

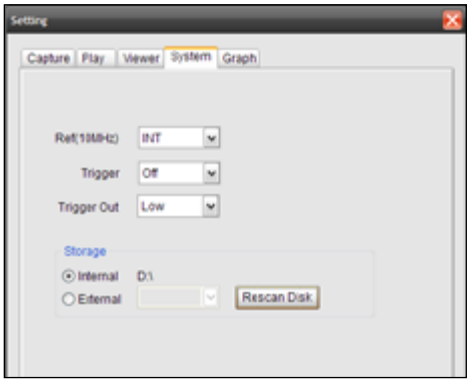


*** Trigger Operation**

In WEIVERex setting, user can choose to use an external trigger.



Trigger On

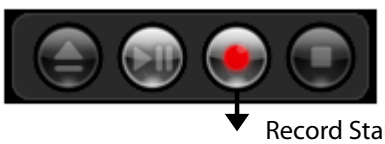


Trigger Off

If user equips an external trigger and choose to turn trigger on(in previous page),

- **0V** When you do not push trigger : Low Level(0V) – In capture & play mode, WEIVER doesn't work.
- **3.3V** When you push trigger : High Level(3.3V)– In capture & play mode, WEIVER starts to work.

In Capture Mode (WEIVERex)



Record Start Button

Record Stop Button

In Play Mode (WEIVERex)

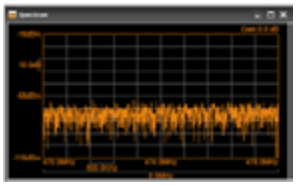
Play Start Button

Play Stop Button

Capture Mode Scenario with trigger

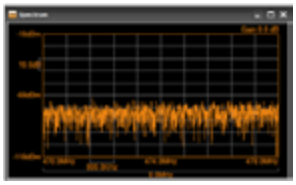
1. Insert a trigger in 'trigger port' : Low Level(0V)

2. Trigger's power On
3. In WEIVERex, Record Start Button Click



Stopping

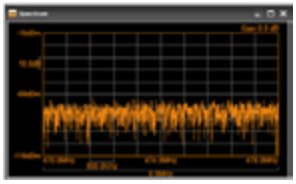
4. Activate(push) Trigger : High Level(3.3V)
5. Recording…. Saving file(iqw, wpj)
   Recording... Recording...



Updating

6. Deactivate(stop pushing) Trigger : Low Level(0V)
7. In WEIVERex, Record Stop Button Click

8. Trigger's power Off

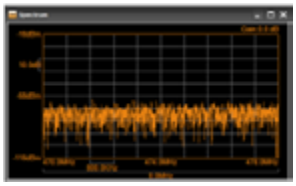


Stopping

Play Mode Scenario with trigger

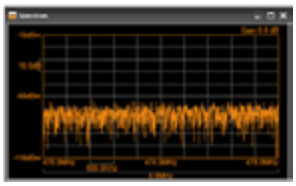
1. Insert a trigger in 'trigger port' : Low Level(0V)

2. Trigger's power On
3. In WEIVERex, Play File Select, Play Start Button Click



Updating->
Stopping

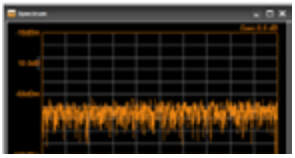
4. Activate(push) Trigger : High Level(3.3V)
5. Playing file(iqw, wpj)
   Playing... Playing



Updating

6. Deactivate(stop pushing) Trigger : Low Level(0V)
7. In WEIVERex, Record Stop Button Click

8. Trigger's power Off



Stopping

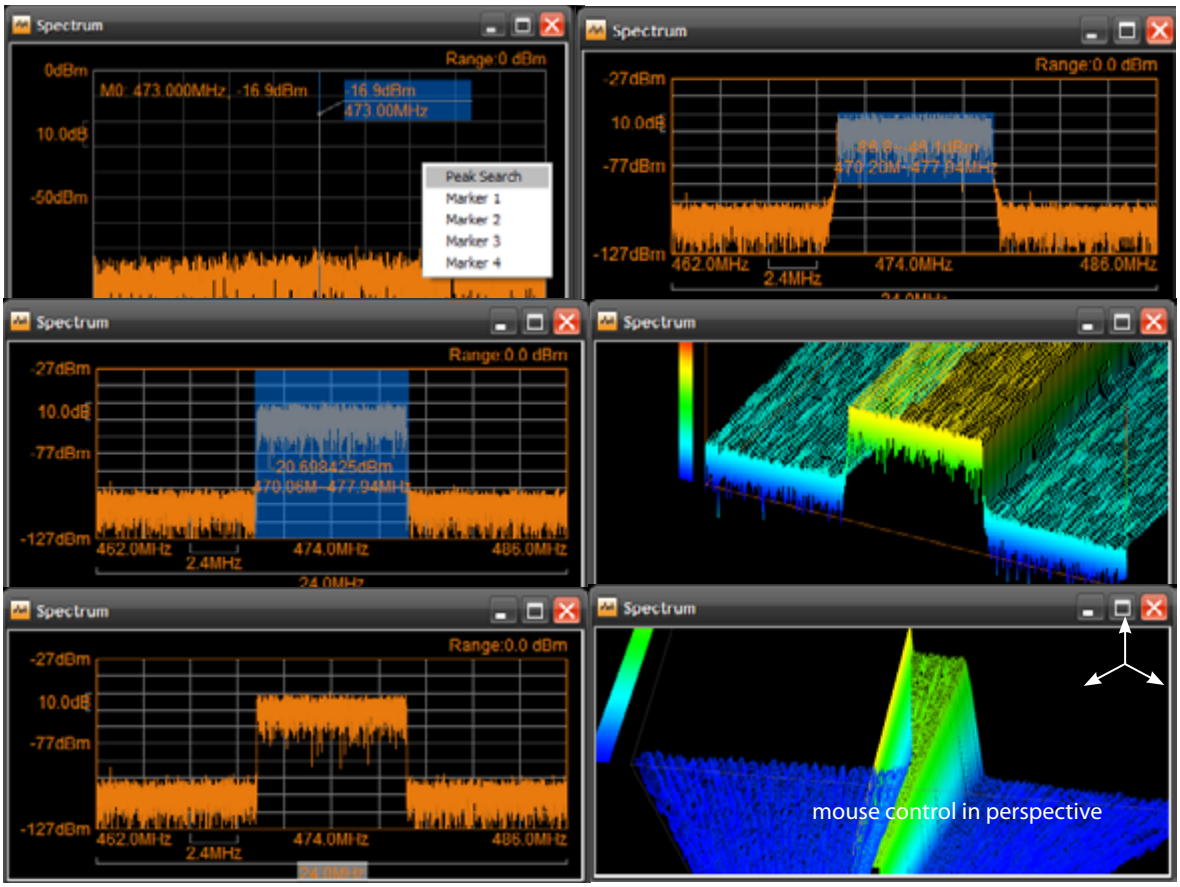
- Storage

In Capture Mode, the WEIVER can record to either the internal (default) SSD or the external e-SATA (optional) SSD directly. The recording data is written in real-time in the two way, internal and external storages.

While on recording, the data overflow can be occured. When this overflow occurs, the captured data may not be written properly. The read and write speeds for the e-SATA SSD is more than 240MB/s.

The primary storage destination is D:\ ("D Drive"), all Captured data files can be found in D:\WeiverData\Record. The external SSD's location will be E:\ ("E Drive") and Captured data files can be found in E:\WeiverData\Record.

- **Analyzer**



-3D Spectrum

Within Spectrum View, the spectrum can be displayed in a simulated 3D style. 3D graph can be controled with mouse control in a perspective way.

-2D Spectrum

By default, the spectrum is displayed as 2D style. The Complex FFT Spectrum will display captured 8M bandwidth and captured 24M, 48M and 56M bandwidth.

-Zoom Mode

In the Spectrum View, the Zoom In feature can be used. To return to the initial non-zoomed state use Undo , or press the key, Ctrl +Z.

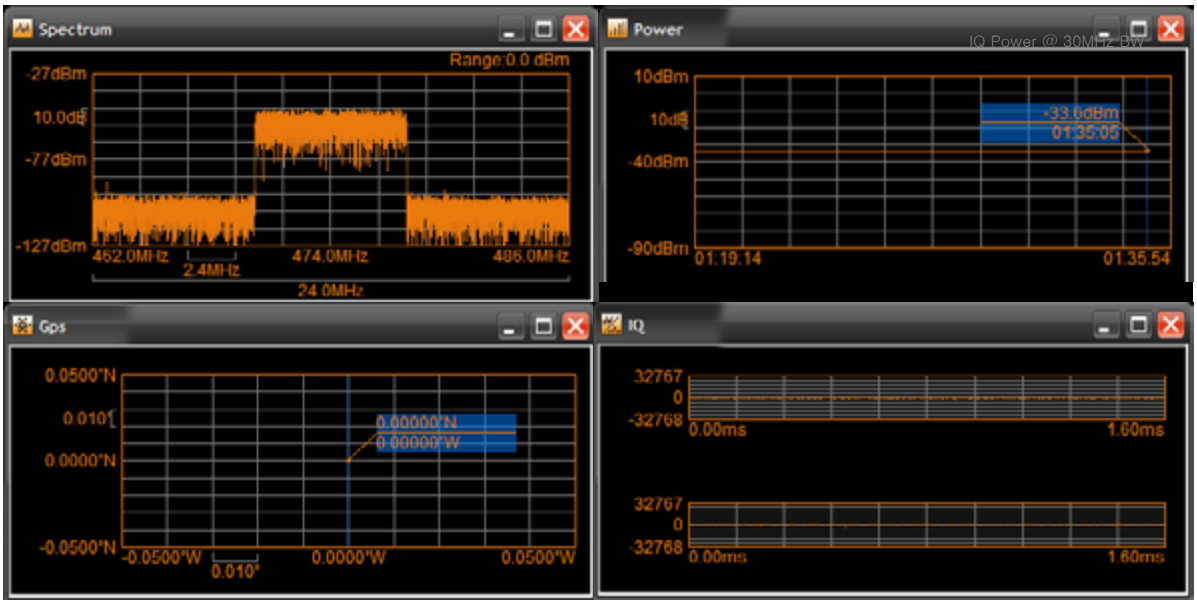
-Marker Mode

The Marker feature can be used to measure power of the RF signal.

-Band Power Mode

In the Spectrum View, drag your mouse to the desired Band Power Range to see the respective measurement.

- **View**



-Spectrum

By adjusting the frequency in spectrum window, user can observe in-band RF signal (within range of 8M, 24M bandwidth) and by adjusting the Range Input Capture mode, the RF IN signal power can optimized by controlling range in a capture mode.

-Power

The power of RF IN signals from the Antenna or RF Cable can be observed.

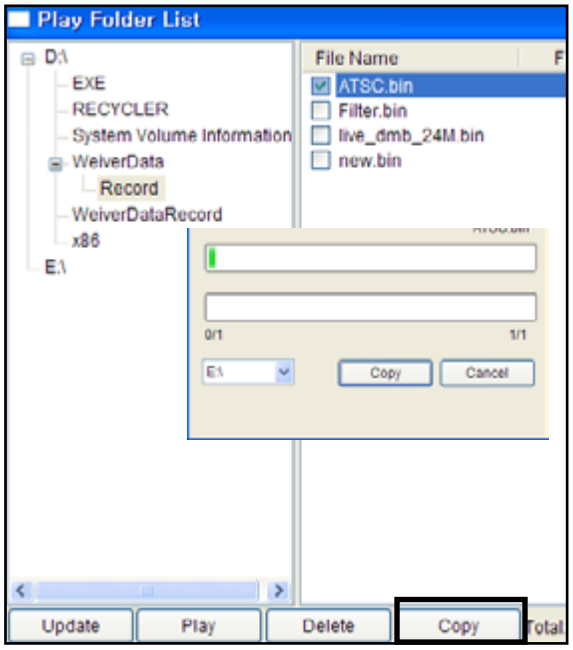
-GPS

In the Preview Mode, the current GPS coordinates is displayed. In the Capture Mode, the actual GPS coordinates of the captured data is shown and recorded.

-IQ

The RF input signal I (In-Phase) / Q (Quad-Phase) signal is separated into the display.

- **Util**



*** Backup**

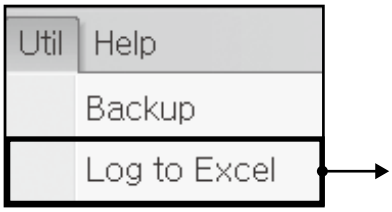
Captured data is by default stored in the D: \ (D Drive). When the default internal storage reaches a remaining capacity of 2GB or less, the Capture function will automatically stop. To ensure continuous uninterrupted data capture, a backup external storage device (e-SATA SSD) must be enabled/ connected.

*** Log to Excel**

Provides the functions of extracting information such as File Names, File Sizes, BW, Sample Clock, Frequency, Time, Time Based Signal power, Time Based GPS Location, and saving them in form of excel files.

All raw data gained during field testing can be harvested for documentation and reporting.

[.xls format]



	A	B	C	D
1	FileName:DRV-TDMB-8M-183.008.iqw			
2	FileSize:24065MB			
3	BW:8MHz			
4	Sample Clock:10000000Hz			
5	Frequency:183008000Hz			
6	Time:601 Seconds			
7				
8				
9	Time(s)	Power(dBr	Longitude	Latitude
10	1	-35.2	126.8871	37.4678
11	2	-36.4	126.8871	37.4679
12	3	-35.3	126.8871	37.4679
13	4	-35.3	126.8871	37.4679
14	5	-34.6	126.8871	37.468
15	6	-35.2	126.8871	37.468

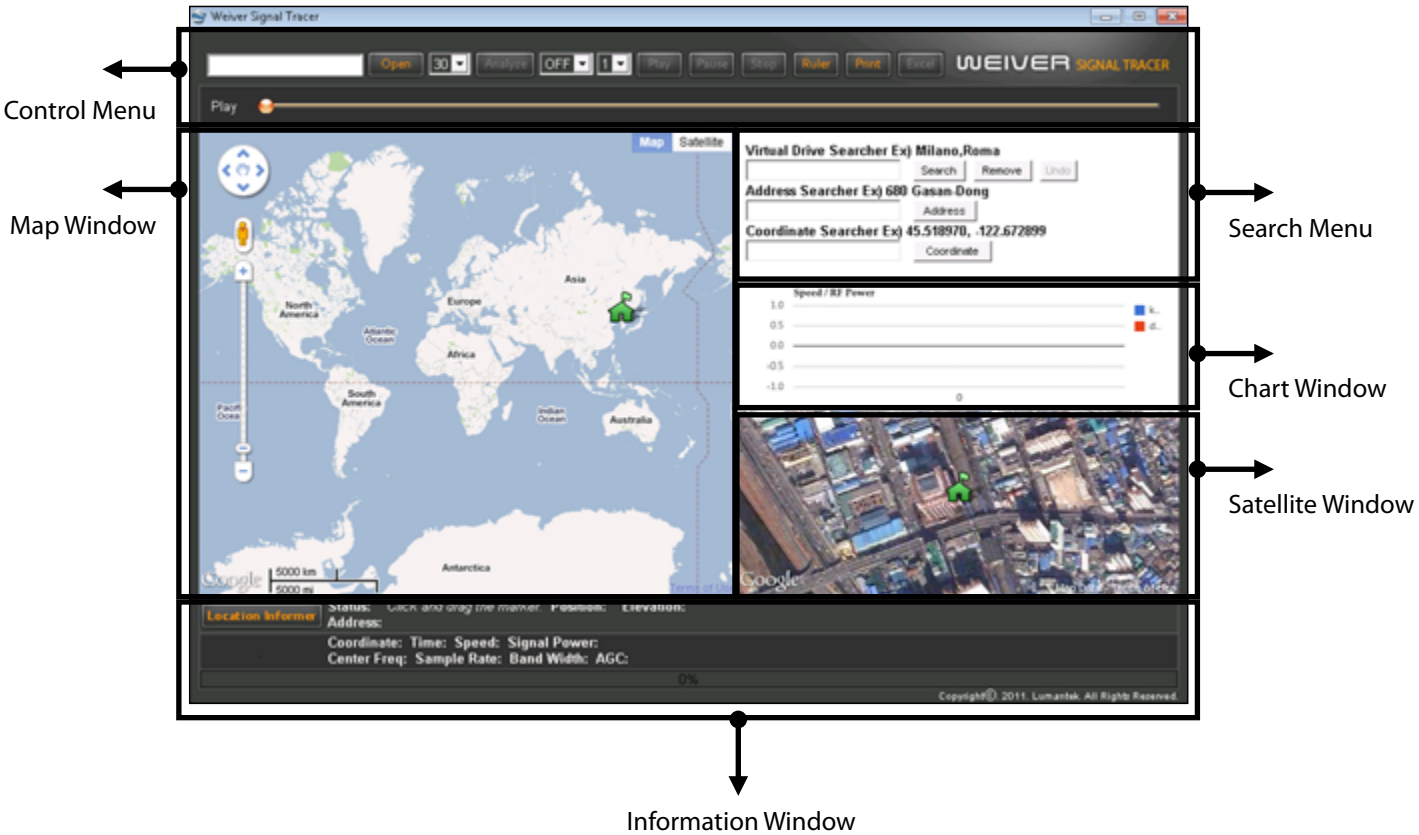
- **Weiver Signal Tracer**

Introduction

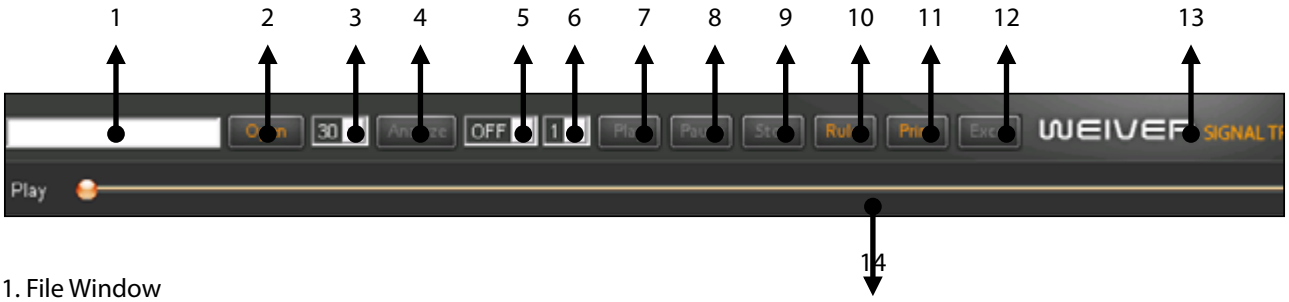
'Weiver Signal Tracer' provides a user information regarding location, power of RF signal, velocity when analyzing the data captured by WEIVER. In many cases, many circumstantial variables, except for RF signal, makes user have problem to analyze after user captured the data with RF capture equipment. Using map and captured data, Weiver Signal Tracer allows user to analyze the geographical peculiarity such as skyscrapers and tunnels and vehicle's velocity when user was capturing the data. Checking a virtual drive route before a drive test and Searching the geography with address or longitude and altitude is able to do.

Weiver Signal Tracer is based on Google Map API V3 and required the Internet connection. Microsoft Internet Explorer (IE) 7.0 or later version should be installed at user's PC. Loading time for map is varies depending on the network and PC's specification and control name in Graphic User Interface, copyrights notice, navigation, and label in map is followed by the language setting for PC's browsers. Supported language list can be found at the appendix.

Specification



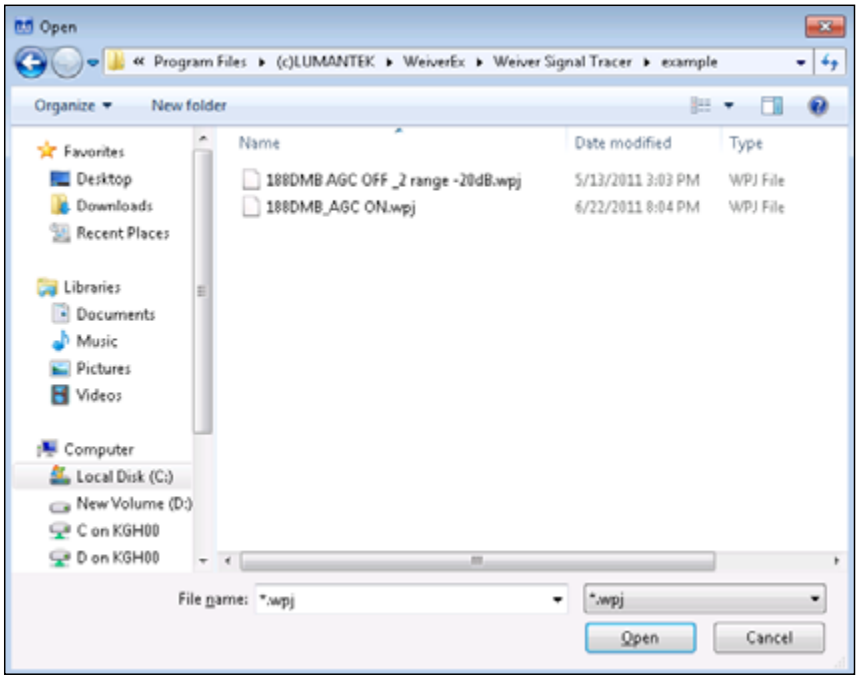
Control Menu



1. File Window

Displaying the file's name after choosing a file.

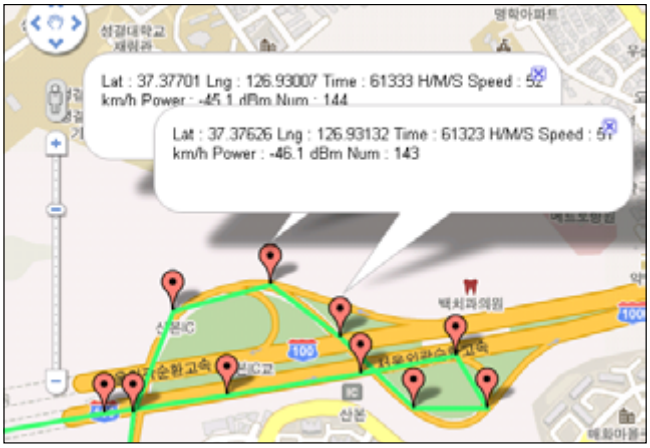
2. Open button



Opening Windows to select *.wpj file.

3. Sample Interval

wpj-typed file stores information in one second however, for displaying all information at the map and chart spends plenty of time. Therefore user can choose time interval from 5 to 30 seconds to selectively extract information.
ex) 10 Sec Sample Interval


Lat : 37.37701 Lng : 126.93007 Time : 61333 H/M/S Speed : 52 km/h Power : -45.1 dBm Num : 144
Lat : 37.37626 Lng : 126.93132 Time : 61323 H/M/S Speed : 51 km/h Power : -46.1 dBm Num : 143

Time interval between two points in the picture above is 10 seconds (6h 13m 23s ~ 6h 13m 33s)

4. Analyze button

Displaying information of wpj file on map and chart, using the sample's time interval. Double-click a marker on the map shows information and click it then information disappear.

5. Repeat button

Selecting play mode: one time or repeat .

6. Play Time Interval

Play mode basically support in one second. However, increasing sample interval results of various changes since an interval between two points gets away. Play time interval can be controlled at each point by 'play time interval' function.

Lat : 37.46514 Lng : 126.88436 Time : 55029 H/M/S Speed : 0 km/h
Power : -37.8 dBm Num : 12
Gasan-dong
Haan 1 (i)-dong
Haan 2 (i)-dong
Haan 3 (sam)-dong
Haan 4 (sa)-dong
Doksan 2 (i)-dong
1 sec

7. Play button

Being based on an analyzed data, user can follow the actual driving route and check information.

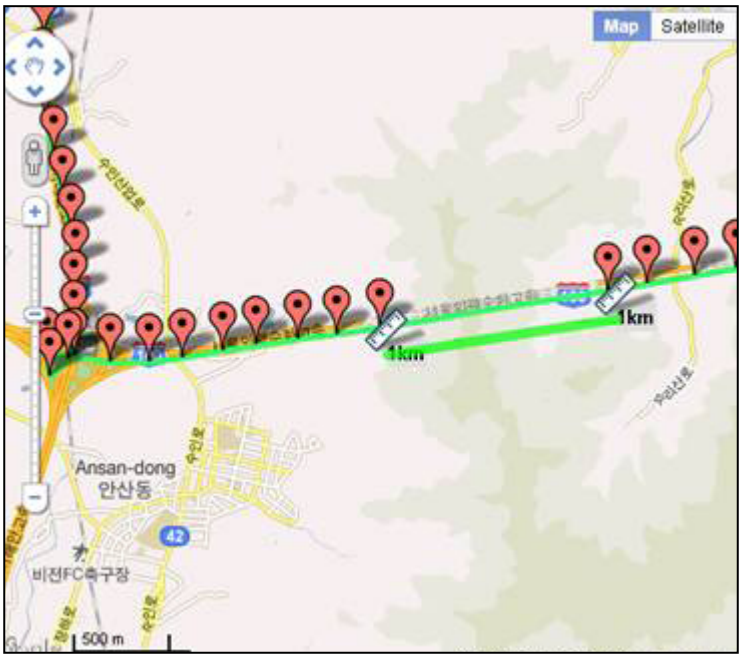
8. Pause button

9. Stop button

If stop button clicks, a map moves to start point.

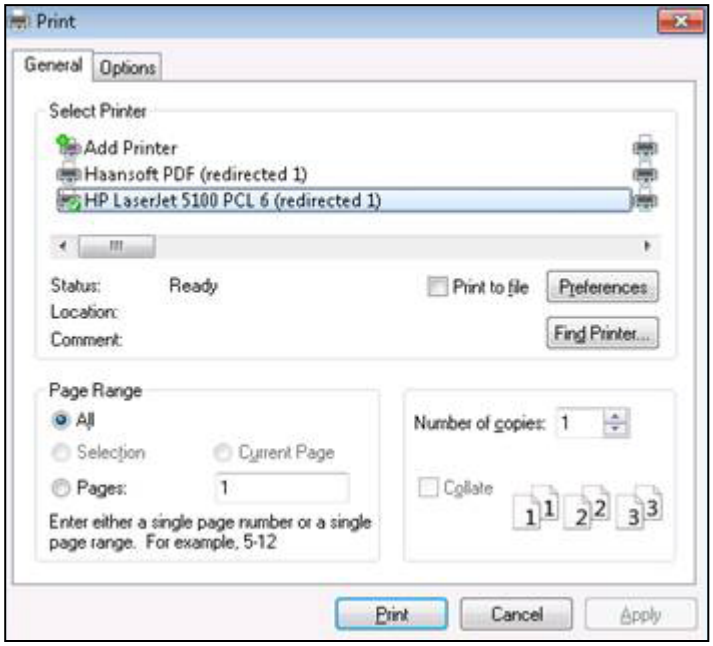
10. Ruler button

User can find out the length with ruler. After estimating the length, if user clicks this button, label about length remains and ruler is disappear. This measurement can be used in multiple times.



11. Print button

User can print out a result through a designated printer.



12. Excel button

This function supports user to extract an analyzed data as an Excel format file(*.csv) and open and store the file on user's demand.

	A	B	C	D	E	F	G
1	Number	Latitude	Longitude	Time[UTC	Speed[km	RF Power[dBm]	
2	0	37.46711	126.8874	54823	0	-38	
3	1	37.46712	126.8874	54834	0	-38.9	
4	2	37.46712	126.8874	54844	0	-33.9	
5	3	37.46678	126.8876	54855	20	-38.7	
6	4	37.46638	126.8877	5495	9	-39.5	
7	5	37.46613	126.8869	54916	26	-37.9	
8	6	37.46569	126.8859	54926	33	-38.5	
9	7	37.46548	126.8855	54937	0	-35	
10	8	37.46548	126.8855	54947	0	-34.6	
11	9	37.46548	126.8855	54958	0	-34.4	
12	10	37.46541	126.8854	5508	8	-34.7	
13	11	37.46522	126.8847	55019	25	-32.4	
14	12	37.46514	126.8844	55029	0	-37.8	
15	13	37.4651	126.8842	55040	9	-33.1	
16	14	37.4651	126.8842	55050	0	-33.3	
17	15	37.4651	126.8841	5511	0	-35.5	
18	16	37.46533	126.8839	55111	25	-34.7	
19	17	37.46603	126.8833	55122	34	-37.1	
20	18	37.46681	126.8826	55132	36	-37.4	
21	19	37.46749	126.8819	55143	21	-42.8	
22	20	37.46751	126.8819	55153	9	-43.5	

13. Lumantek Webpage

Moving to Lumantek's webpage when user clicks the logo.

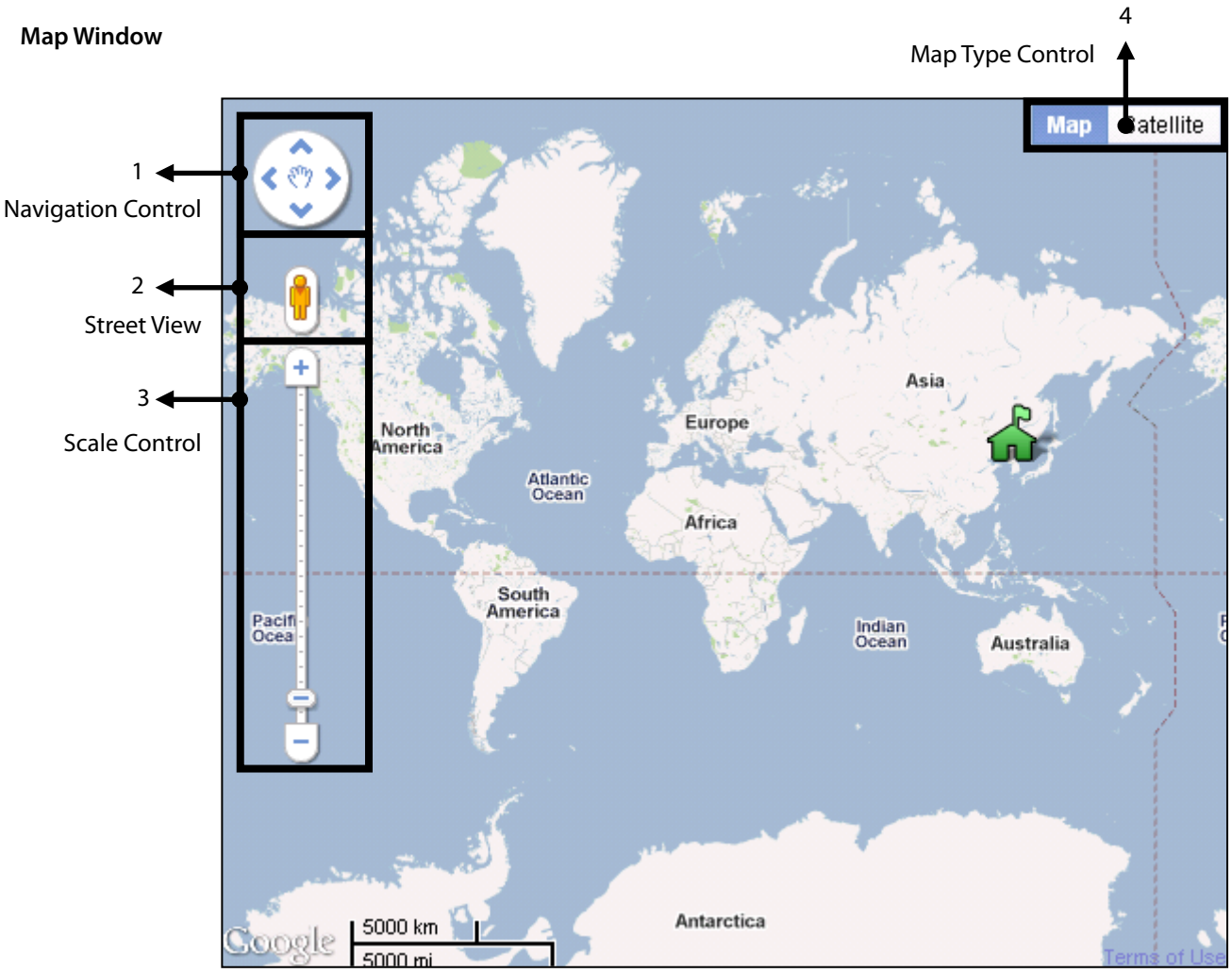
14. Play Bar

Displaying the current condition during playing. User can use 'drag and play' function.

13. Lumantek Webpage

Moving to Lumantek's webpage when user clicks the logo.

Map Window



1. Navigation Control

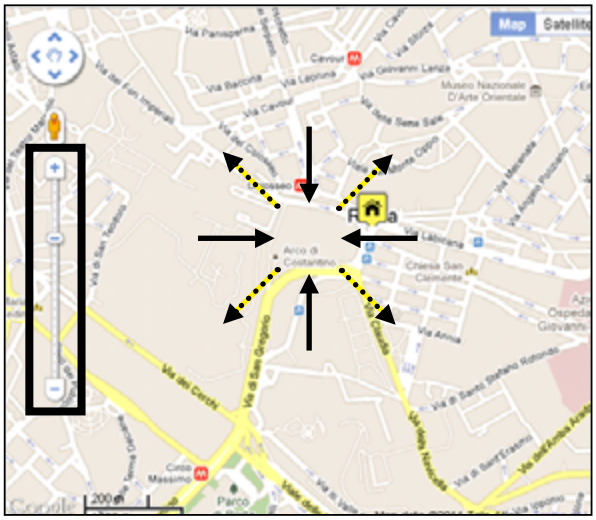
User can control left and right or top and bottom of map by clicking navigation control and the movement of map is possible with mouse's drag.

2. Street View

To view street-level imagery for a specific location, click and drag [man icon] to the location a user wants. Roads with available street-level imagery appear with a blue border. Navigate to the location you want. Zoom in all the way. If street-level imagery is available, it appears when you zoom in all the way. To navigate along a street, a user needs to click one of the white arrows overlaid on the street to move in that direction, or use the arrow keys and to close the view, click [x] button . The situation of 'Street View service' is varied over the world so please check Google map service at the appendix

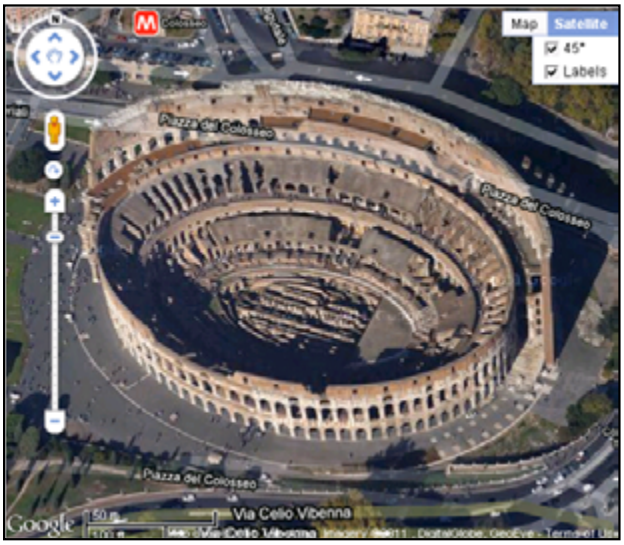
3. Scale Control

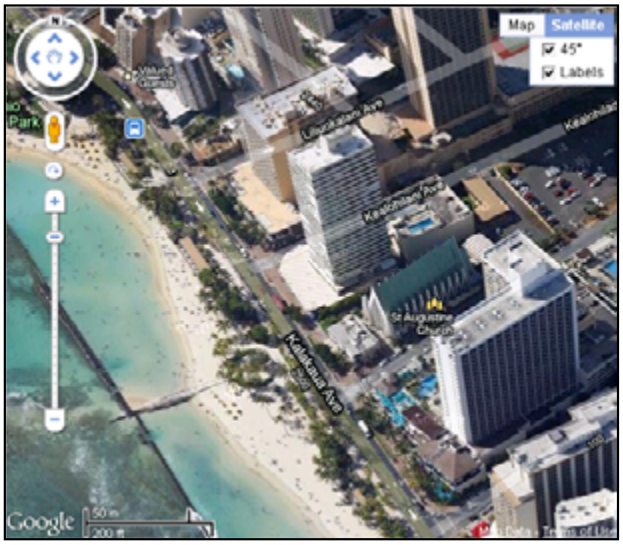
To expand or reduce the size of map, it can be controlled by clicking a mouse left-button and the other way is a mouse pointer with scroll function; pointing at the location where a user wants can change the size of the map. Double-clicking of mouse left-button at the location on the map makes it expand and doing of mouse right-button makes it reduce. Another way is to push 'shift' key on the map window.



4. Map Type Control

Weiver Signal Tracer's default map type is a normal-typed map; however, a user is able to select a satellite map, locating at the right above. A 45° slop satellite map is provided depending on country and region. A map can be rotated 360 degrees at the location where a 45° slop satellite map is provided.

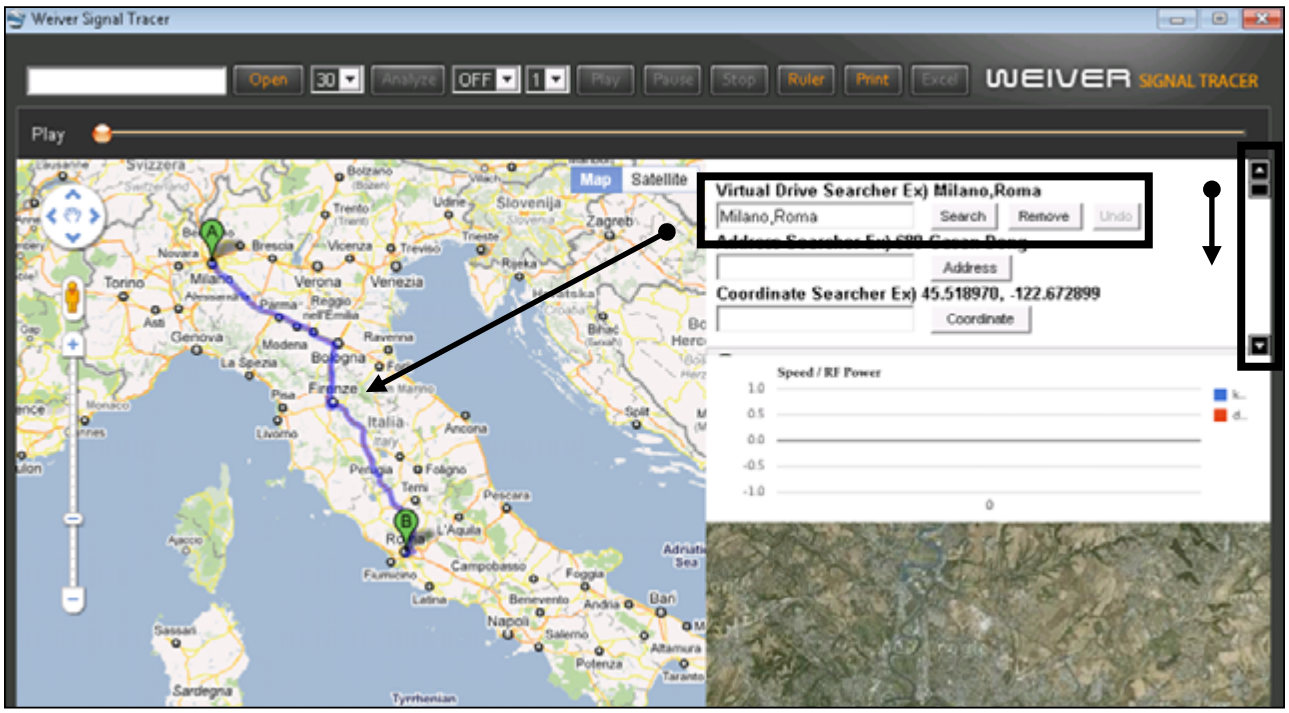


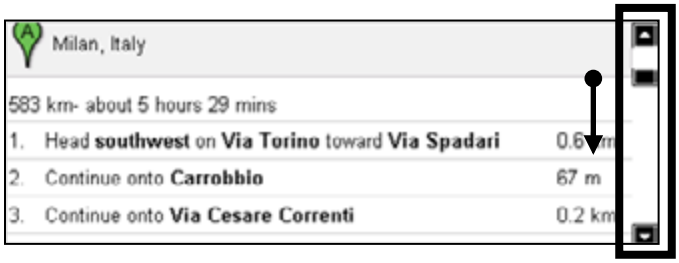


Search Menu

1. Virtual Drive Searcher

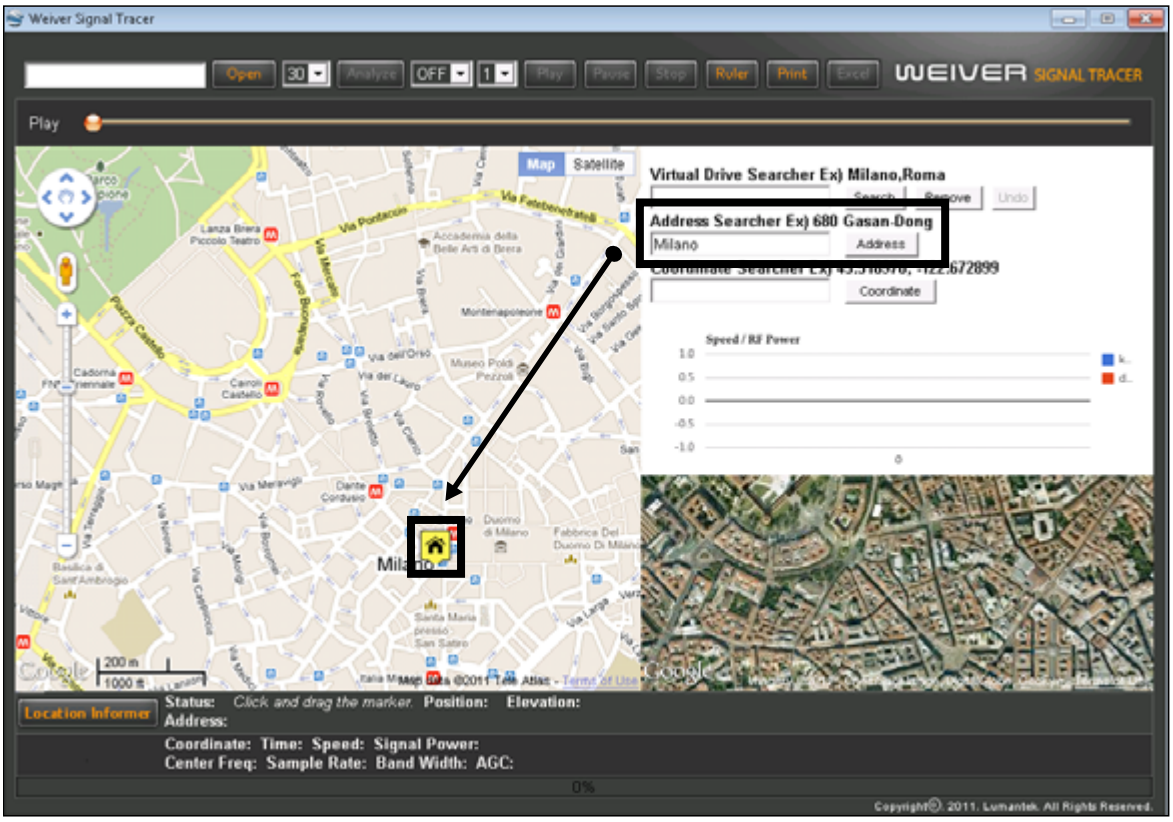
This function supports to search a driving test route before user has. At the route input window, 1) inputting a departure point and an arrival point and then 2) pushing enter or clicking 'Search button.' activates 'Virtual Drive searcher.' When it performs, a scroll bar appears on the right and, if each driving route is clicked, detailed driving routes between the departure point and the arrival point show up. If each driving point is clicked, it leads to being moved to the corresponding location. 'Virtual Drive Searcher' service is varied on each country so please refer to the appendix, 'Google map Service.'




Milan, Italy
583 km- about 5 hours 29 mins
1. Head southwest on Via Torino toward Via Spadari
2. Continue onto Carrobbio 67 m
3. Continue onto Via Cesare Correnti 0.2 km

2. Adress Searcher

After inputting information regarding the location a user likes to see, pushing 'enter' or clicking 'Address button' activates 'Address searcher' and the searched result displays on the map with a marker. Address searcher service is varied for each country so please refer to the appendix, 'Google map Service.'



3. Coordinate Searcher

After inputting a coordinates which user wants to see at input window, pushing 'enter' or clicking 'coordinate button' activates 'Coordinate Searcher' and the searched result displays on the map with a marker. Entering a coordinates should follow 'WGS-84 Decimal Number Format.'

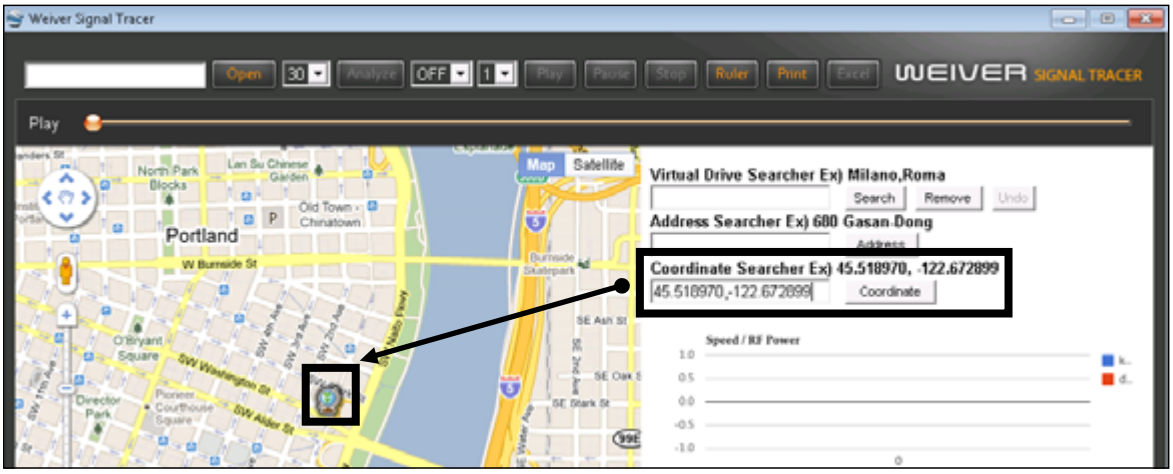
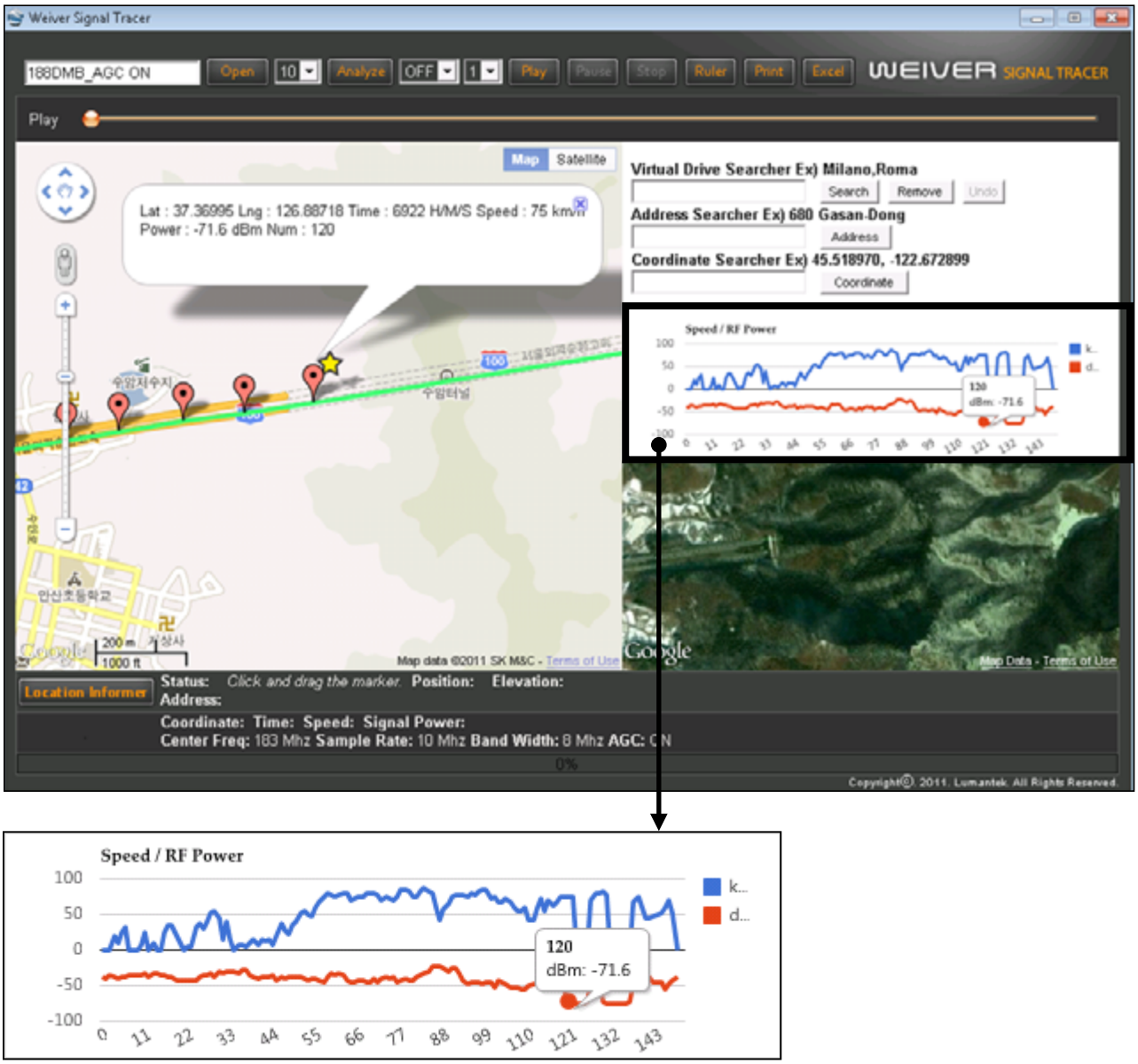


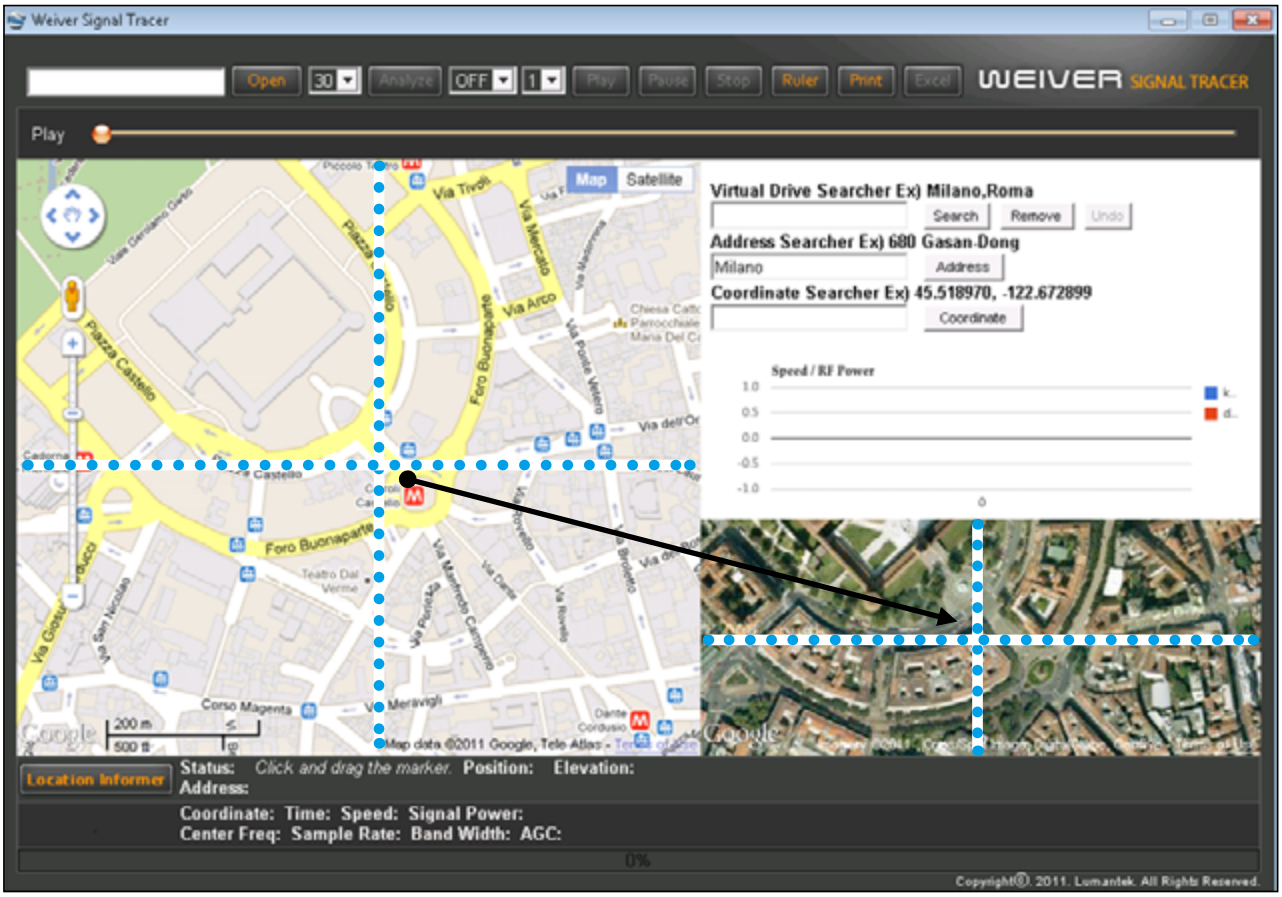
Chart Window

Chart window displays after analyze. The blue-colored graph is for a velocity of the vehicle and the red-colored graph is for RF signal's power. According to the chart in the above, the signal sharply dropped in two times, approaching mouse pointer to these points makes information of each point indicate at the note. Clicking the note allows it to move the corresponding location in the map (In the tunnel, GPS coordinates cannot be received, therefore clicking any points of tunnel leads to display the latest GPS coordinates).

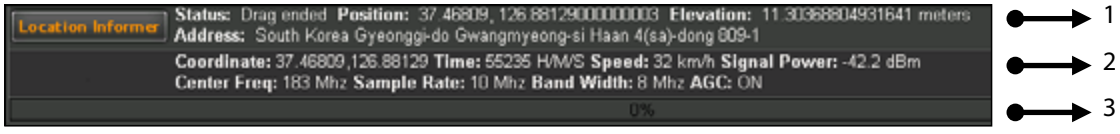


Satellite Window

It is difficult for user to analyze geographical features only with map, in this case, 'Satellite Window' helps user analyze, providing satellite map which shares same center with a map. 'Satellite window' is automatically controlled by map window and, depending on user's needs, can be controlled by mouse drag or wheel (Satellite Window can perform when zoom level of map window is above the certain level).



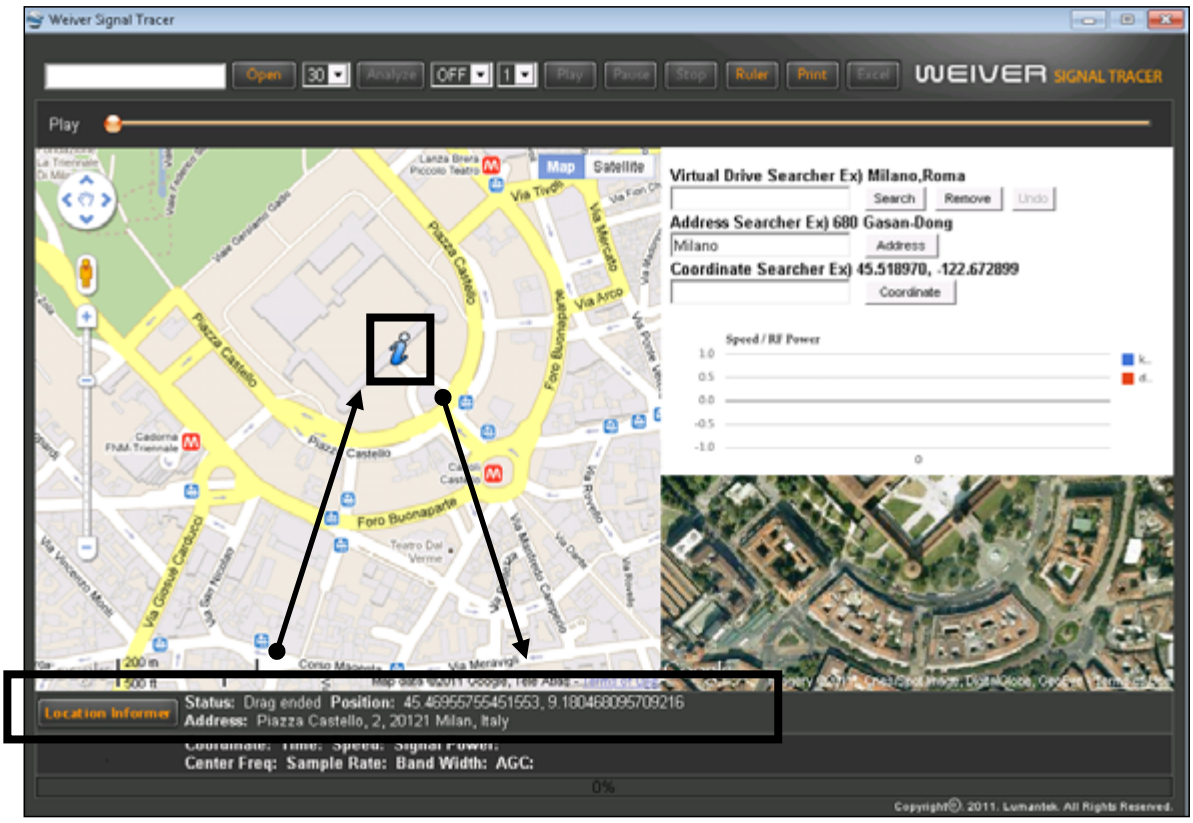
Information Window


Location Informer
Status: Drag ended Position: 37.46809, 126.88129000000003 Elevation: 11.30968804931641 meters
Address: South Korea Gyeonggi-do Gwangmyeong-si Haan 4(sa)-dong 609-1
Coordinate: 37.46809,126.88129 Time: 55235 H/M/S Speed: 32 km/h Signal Power: -42.2 dBm
Center Freq: 183 Mhz Sample Rate: 10 Mhz Band Width: 8 Mhz AGC: ON
0%
1
2
3

1. Location Informer Window
2. Play & File Information Window
3. Progress Bar

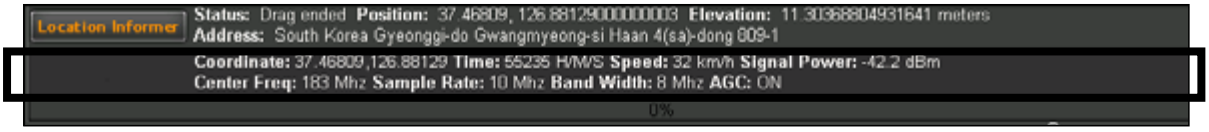
1. Location Informer Window

If a user wants to know address and coordinates of the certain location, clicking 'Location informer button' makes a maker appear in the center of a map. It indicates the coordinates for the nearest address and the altitude based on the average 0 sea level. The marker can be moved by drag & drop of mouse and whenever it moves, it displays new information.



2. Play & File Information Window

During analyzing, this part shows information (Center Frequency, Sample Rate, Band Width, and AGC) of captured file and, during playing, indicates coordinates, time, velocity, and RF signal power of each point.


Location Informer
Status: Drag ended Position: 37.46809, 126.88129000000003 Elevation: 11.30368804931641 meters
Address: South Korea Gyeonggi-do Gwangmyeong-si Haan 4(sa)-dong 609-1
Coordinate: 37.46809,126.88129 Time: 55235 H/M/S Speed: 32 km/h Signal Power: -42.2 dBm
Center Freq: 183 Mhz Sample Rate: 10 Mhz Band Width: 8 Mhz AGC: ON
0%

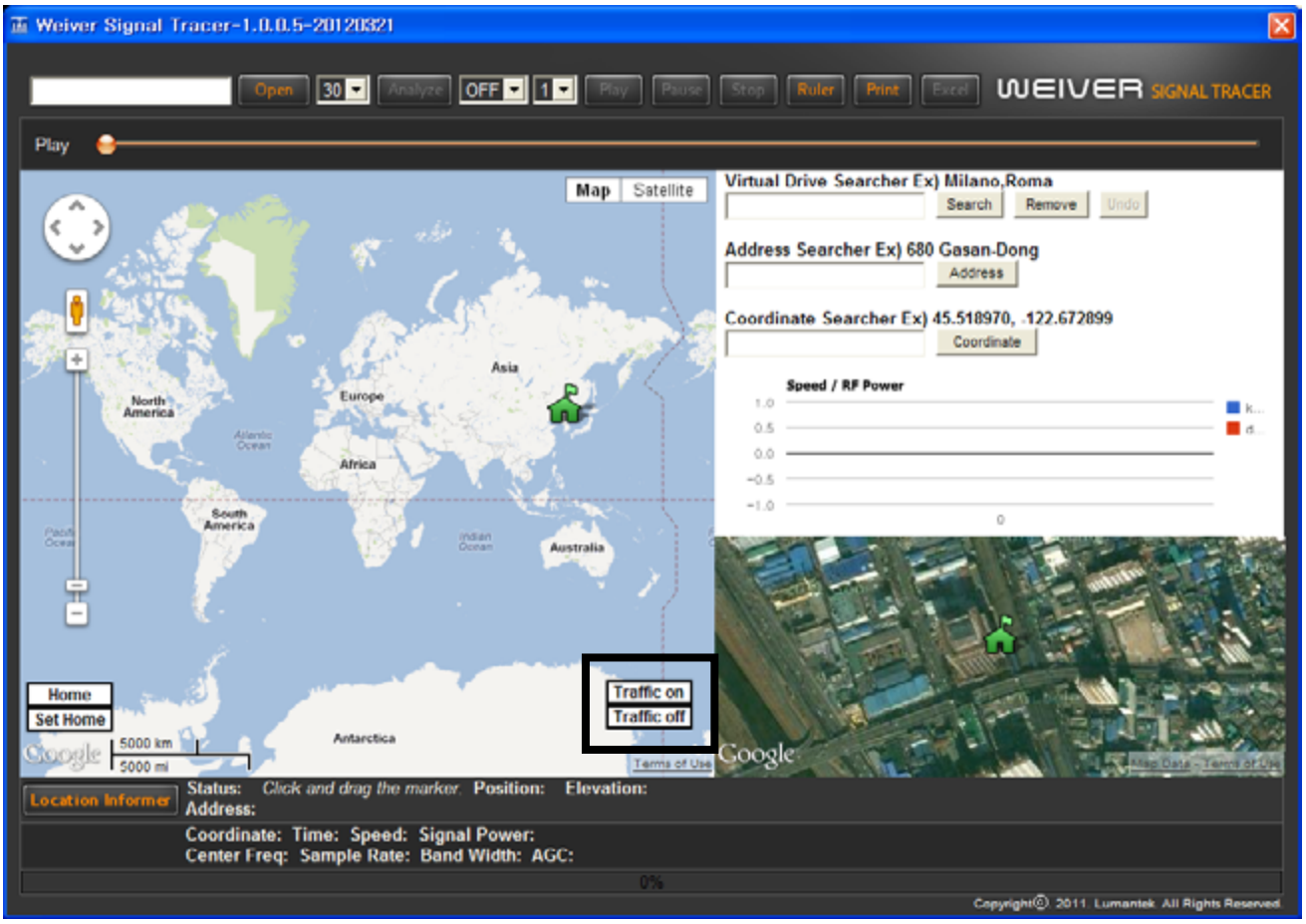
3. Progress Bar

During analyzing, progress displays at the 'progress bar'

Location Informer
Status: Drag ended Position: 37.46809, 126.88129000000003 Elevation: 11.30368804931641 meters
Address: South Korea Gyeonggi-do Gwangmyeong-si Haan 4(sa)-dong 609-1
Coordinate: 37.46809,126.88129 Time: 55235 H/M/S Speed: 32 km/h Signal Power: -42.2 dBm
0%

Real-Time Traffic Information

The Weiver Signal Tracer allows you to see real-time traffic information (where supported) to your maps using the Traffic Function of Weiver signal Tracer. Traffic information is provided for the time at which the request is made. Consult this spreadsheet to determine traffic coverage support.



Traffic tracer on

Traffic tracer off

* Appendix. Google Map Service

country/region	map tiles	geocoding	street	driving directions
Afghanistan	Yes (Major Roads Only)	Yes (same as tiles)	No	No
Albania	Yes (MapMaker Only)	Yes (same as tiles)	No	Yes (Major Cities Only)
Algeria	Yes	Yes (same as tiles)	No	Yes
American Samoa	Yes (MapMaker Only)	Yes (same as tiles)	No	Yes
Andorra	Yes	Yes (same as tiles)	No	Yes (Major Cities Only)
Anguilla	Yes (MapMaker Only)	Yes (same as tiles)	No	No
Angola	Yes (Major Roads Only)	Yes (same as tiles)	No	Yes
Antigua and Barbuda	Yes	Yes (same as tiles)	No	Yes
Argentina	Yes	Yes (same as tiles)	No	Yes
Armenia	Yes (MapMaker Only)	Yes (same as tiles)	No	Yes
Aruba	Yes (MapMaker Only)	Yes (same as tiles)	No	Yes
Australia	Yes	Yes (same as tiles)	Yes	Yes
Austria	Yes	Yes (same as tiles)	No	Yes
Azerbaijan	Yes (MapMaker Only)	Yes (same as tiles)	No	Yes
Bahamas	Yes (MapMaker Only)	Yes (same as tiles)	No	Yes
Bahrain	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Bangladesh	Yes (Major Roads Only)	Yes (same as tiles)	No	No
Barbados	Yes (Lacks street names)	Yes (same as tiles)	No	Yes
Belarus	Yes (MapMaker Only)	Yes (same as tiles)	No	No
Belgium	Yes	Yes (same as tiles)	No	Yes
Belize	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Benin	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Bermuda	Yes (MapMaker Only)	Yes (same as tiles)	No	Yes
Bhutan	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Bolivia	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Bosnia and Herzegovina	Yes (MapMaker Only)	Yes (same as tiles)	No	No
Botswana	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Brazil	Yes	Yes (same as tiles)	No	Yes
British Indian Ocean Territory	Yes (MapMaker Only)	Yes (same as tiles)	No	No
Brunei	Yes (Major Roads Only)	Yes (same as tiles)	No	No
Bulgaria	Yes (Major Roads Only)	Yes (same as tiles)	No	Yes (Major Cities Only)

Burkina Faso	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Burundi	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Cambodia	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	No
Cameroon	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Canada	Yes	Yes (same as tiles)	Yes	Yes
Cape Verde	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Cayman Islands	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Central African Republic	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Chad	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Chile	Yes	Yes (same as tiles)	No	Yes
China	Yes	Yes (same as tiles)	No	Yes (Domain-restricted)
Christmas Island	Yes (MapMaker Only)	Yes (same as tiles)	No	No
Cocos Islands	Yes (MapMaker Only)	Yes (same as tiles)	No	No
Colombia	Yes	Yes (same as tiles)	No	No
Comoros	Yes (Major Roads, MapMaker Additions	Yes (same as tiles)	No	Yes
Cook Islands	Yes (MapMaker Only)	Yes (same as tiles)	No	Yes
Congo	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Costa Rica	Yes (MapMaker Only)	Yes (same as tiles)	No	Yes
Côte d'Ivoire	Yes (Major Roads Only)	Yes (same as tiles)	No	Yes
Croatia	Yes	Yes (same as tiles)	No	No
Cuba	Yes	Yes (same as tiles)	No	No
Cyprus	No	No	No	No
Czech Republic	Yes	Yes (same as tiles)	Yes	Yes
Denmark	Yes	Yes (same as tiles)	Yes	Yes
Djibouti	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
DRC	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Dominica	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Dominican Republic	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Ecuador	Yes	Yes (same as tiles)	No	No
Egypt	Yes	Yes (same as tiles)	No	Yes
El Salvador	Yes (MapMaker Only)	Yes (same as tiles)	No	Yes

Equatorial Guinea	Yes (Major Roads Only)	Yes (same as tiles)	No	Yes
Eritrea	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Estonia	Yes	Yes (same as tiles)	No	Yes (Major Cities Only)
Ethiopia	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Fiji	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Finland	Yes	Yes (same as tiles)	Yes	Yes
France	Yes	Yes (same as tiles)	Yes	Yes
French Guiana	Yes (Major Roads Only)	Yes (same as tiles)	No	Yes
Gabon	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Gambia	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Germany	Yes	Yes (same as tiles)	No	Yes
Ghana	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Greenland	Yes (MapMaker Only)	Yes (same as tiles)	Yes	Yes
Greece	Yes	Yes (same as tiles)	No	Yes (Major Cities Only)
Grenada	Yes (Lacks street names)	Yes (same as tiles)	No	Yes
Guam	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	No
Guadeloupe	Yes (MapMaker Only)	Yes (same as tiles)	No	Yes
Guatemala	Yes	Yes (same as tiles)	No	No
Guinea	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Guinea-Bissau	Yes (Major Roads Only)	Yes (same as tiles)	No	Yes
Guyana	No	No	No	Yes
Haiti	Yes	Yes (same as tiles)	No	Yes
Honduras	Yes	Yes (same as tiles)	No	No
Hong Kong	Yes	Yes (same as tiles)	No	Yes
Hungary	Yes	Yes (same as tiles)	No	Yes
Iceland	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	Yes	Yes
India	Yes	Yes (same as tiles)	No	No
Indonesia	Yes	Yes (same as tiles)	No	Yes
Iran	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Iraq	Yes (Major Roads Only)	Yes (same as tiles)	No	No
Ireland	Yes	Yes (same as tiles)	No	Yes
Israel	No	No	No	No
Italy	Yes	Yes (same as tiles)	Yes	Yes

Ivory Coast	Yes (MapMaker Only)	Yes (same as tiles)	No	No
Jamaica	Yes	Yes (same as tiles)	No	Yes
Japan	Yes	Yes (same as tiles)	Yes	No
Jordan	Yes (Lacks street names)	Yes (same as tiles)	No	Yes
Kazakhstan	Yes (Major Roads Only)	Yes (same as tiles)	No	No
Kenya	Yes (Major Roads Only)	Yes (same as tiles)	No	No
Kiribati	No	No	No	No
Kuwait	Yes (Major cities only)	Yes (same as tiles)	No	No
Kyrgyzstan	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Laos	Yes (MapMaker Only)	Yes (same as tiles)	No	Yes
Latvia	Yes	Yes (same as tiles)	No	Yes (Major Cities Only)
Lebanon	Yes	Yes (Lacks street numbers/some towns)	No	Yes
Lesotho	Yes (Major Roads Only)	Yes (same as tiles)	No	No
Liberia	Yes (Major Roads Only)	Yes (same as tiles)	No	Yes
Libya	Yes	Yes (same as tiles)	No	Yes
Liechtenstein	Yes	Yes (same as tiles)	No	Yes
Lithuania	Yes	Yes (same as tiles)	No	Yes (Major Cities Only)
Luxembourg	Yes	Yes (same as tiles)	No	Yes
Macau	Yes	Yes (same as tiles)	No	No
Macedonia	Yes (MapMaker Only)	Yes (same as tiles)	No	Yes (Major Cities Only)
Madagascar	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Malawi	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Malaysia	Yes	Yes (same as tiles)	No	Yes
Maldives	No	No	No	Yes
Mali	Yes (MapMaker Only)	Yes (same as tiles)	No	Yes
Malta	No	No	No	Yes
Marshall Islands	Yes (MapMaker Only)	Yes (same as tiles)	No	Yes
Martinique	Yes (MapMaker Additions)	Yes (same as tiles)	No	Yes
Mauritania	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Mauritius	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Mexico	Yes	Yes (same as tiles)	Yes	No
Micronesia	Yes (MapMaker Only)	Yes (same as tiles)	No	No
Moldova	Yes (MapMaker Only)	Yes (same as tiles)	No	Yes (Major Cities Only)
Monaco	Yes	Yes (same as tiles)	No	Yes (Major Cities Only)

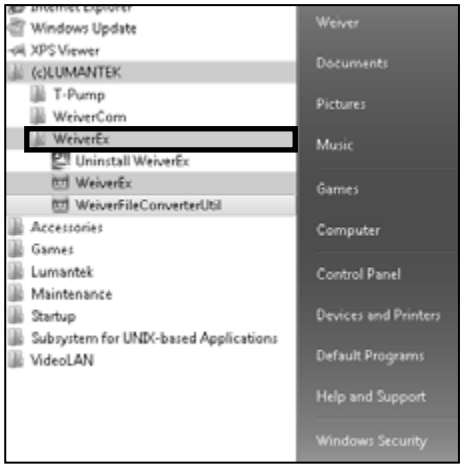
Mongolia	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	No
Montenegro	Yes (MapMaker Only)	Yes (same as tiles)	No	Yes (Major Cities Only)
Montserrat	Yes (MapMaker Only)	Yes (same as tiles)	No	Yes
Morocco	Yes (Lacks street names)	Yes (same as tiles)	No	Yes
Mozambique	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Myanmar	Yes (MapMaker Only)	Yes (same as tiles)	No	No
Namibia	Yes (Major Roads Only)	Yes (same as tiles)	No	Yes
Nauru	Yes (MapMaker Only)	Yes (same as tiles)	No	No
Nepal	Yes (Major Roads Only)	Yes (same as tiles)	No	No
Netherlands	Yes	Yes (same as tiles)	Yes	Yes
Netherlands Antilles	Yes (MapMaker Only)	Yes (same as tiles)	No	Yes
New Zealand	Yes	Yes (same as tiles)	Yes	Yes
Nicaragua	Yes	Yes (same as tiles)	No	No
Niger	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Nigeria	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Niue	Yes (MapMaker Only)	Yes (same as tiles)	No	Yes
Northern Mariana Islands	Yes (MapMaker Only)	Yes (same as tiles)	No	Yes
North Korea	No	No	No	No
Norway	Yes	Yes (same as tiles)	Yes	Yes
Oman	Yes (Major cities only)	Yes (same as tiles)	No	No
Pakistan	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	No
Palau	No	No	No	Yes
Panama	Yes	Yes (same as tiles)	No	No
Papua New Guinea	Yes (Major Roads Only)	Yes (same as tiles)	No	Yes
Paraguay	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Peru	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Philippines	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	No
Pitcairn Islands	Yes (MapMaker Only)	Yes (same as tiles)	No	No
Poland	Yes	Yes (same as tiles)	No	Yes
Portugal	Yes	Yes (same as tiles)	Yes	Yes
Qatar	Yes (Major cities only)	Yes (same as tiles)	No	Yes
Reunion	Yes (MapMaker Only)	Yes (same as tiles)	No	Yes
Romania	Yes (MapMaker Only)	Yes (same as tiles)	No	No

Russia	Yes	Yes (In local character set only)	Yes	Yes (Moscow + Suburbs Only)
Rwanda	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Saint Helena	Yes (MapMaker Only)	Yes (same as tiles)	No	No
Saint Kitts and Nevis	Yes	Yes (same as tiles)	No	No
Saint Vincent and the Grenadines	Yes (MapMaker Only)	Yes (same as tiles)	No	Yes
Saint Lucia	Yes	Yes (same as tiles)	No	Yes
Samoa	Yes (MapMaker Only)	Yes (same as tiles)	No	Yes
San Marino	Yes	Yes (same as tiles)	No	Yes (Major Cities Only)
São Tomé and Príncipe	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Saudi Arabia	Yes (Major cities only)	Yes (same as tiles)	No	No
Senegal	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Serbia	Yes (MapMaker Only)	Yes (same as tiles)	No	Yes (Major Cities Only)
Seychelles	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Sierra Leone	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Singapore	Yes	Yes (same as tiles)	Yes	Yes
Slovakia	Yes	Yes (same as tiles)	No	Yes (Major Cities Only)
Slovenia	Yes	Yes (same as tiles)	No	No
Solomon Islands	Yes (MapMaker Only)	Yes (same as tiles)	No	Yes
Somalia	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
South Africa	Yes	Yes (same as tiles)	No	Yes
South Korea	Yes (Domain-restricted)	Yes (same as tiles)	No	No
Spain	Yes	Yes (same as tiles)	Yes	Yes
Sri Lanka	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	No
Sudan	Yes (Major Roads Only)	Yes (same as tiles)	No	Yes
Suriname	No	No	No	Yes
Swaziland	Yes (Major Roads Only)	Yes (same as tiles)	No	Yes
Sweden	Yes	Yes (same as tiles)	Yes	Yes
Switzerland	Yes	Yes (same as tiles)	Yes	Yes
Syria	Yes (Major Roads Only)	Yes (same as tiles)	No	No
Taiwan	Yes	Yes (In local character set only)	Yes	Yes
Tajikistan	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Tanzania	Yes (Major Roads, MapMaker Additions)	Yes (same as tiles)	No	Yes
Thailand	Yes	Yes (same as tiles)	No	Yes

* Appendix. Google Map Language Service

language code	language name	v3
ar	ARABIC	Yes
eu	BASQUE	Yes
bg	BULGARIAN	Yes
bn	BENGALI	Yes
ca	CATALAN	Yes
cs	CZECH	Yes
da	DANISH	Yes
de	GERMAN	Yes
el	GREEK	Yes
en	ENGLISH	Yes
en-AU	ENGLISH (AUSTRALIAN)	Yes
en-GB	ENGLISH (GREAT BRITAIN)	Yes
es	SPANISH	Yes
eu	BASQUE	Yes
fa	FARSI	Yes
fi	FINNISH	Yes
fil	FILIPINO	Yes
fr	FRENCH	Yes
gl	GALICIAN	Yes
gu	GUJARATI	Yes
hi	HINDI	Yes
hr	CROATIAN	Yes
hu	HUNGARIAN	Yes
id	INDONESIAN	Yes
it	ITALIAN	Yes
iw	HEBREW	Yes
ja	JAPANESE	Yes
kn	KANNADA	Yes
ko	KOREAN	Yes
lt	LITHUANIAN	Yes
lv	LATVIAN	Yes
ml	MALAYALAM	Yes
mr	MARATHI	Yes
nl	DUTCH	Yes
nn	NORWEGIAN NYNORSK	No
no	NORWEGIAN	Yes
or	ORIYA	No
pl	POLISH	Yes
pt	PORTUGUESE	Yes
pt-BR	PORTUGUESE (BRAZIL)	Yes
pt-PT	PORTUGUESE (PORTUGAL)	Yes
rm	ROMANSCH	No
ro	ROMANIAN	Yes
ru	RUSSIAN	Yes
sk	SLOVAK	Yes
sl	SLOVENIAN	Yes
sr	SERBIAN	Yes
sv	SWEDISH	Yes
tl	TAGALOG	Yes
ta	TAMIL	Yes
te	TELUGU	Yes
th	THAI	Yes
tr	TURKISH	Yes
uk	UKRAINIAN	Yes
vi	VIETNAMESE	Yes
zh-CN	CHINESE (SIMPLIFIED)	Yes
zh-TW	CHINESE (TRADITIONAL)	Yes

● **Play File Converting Util**

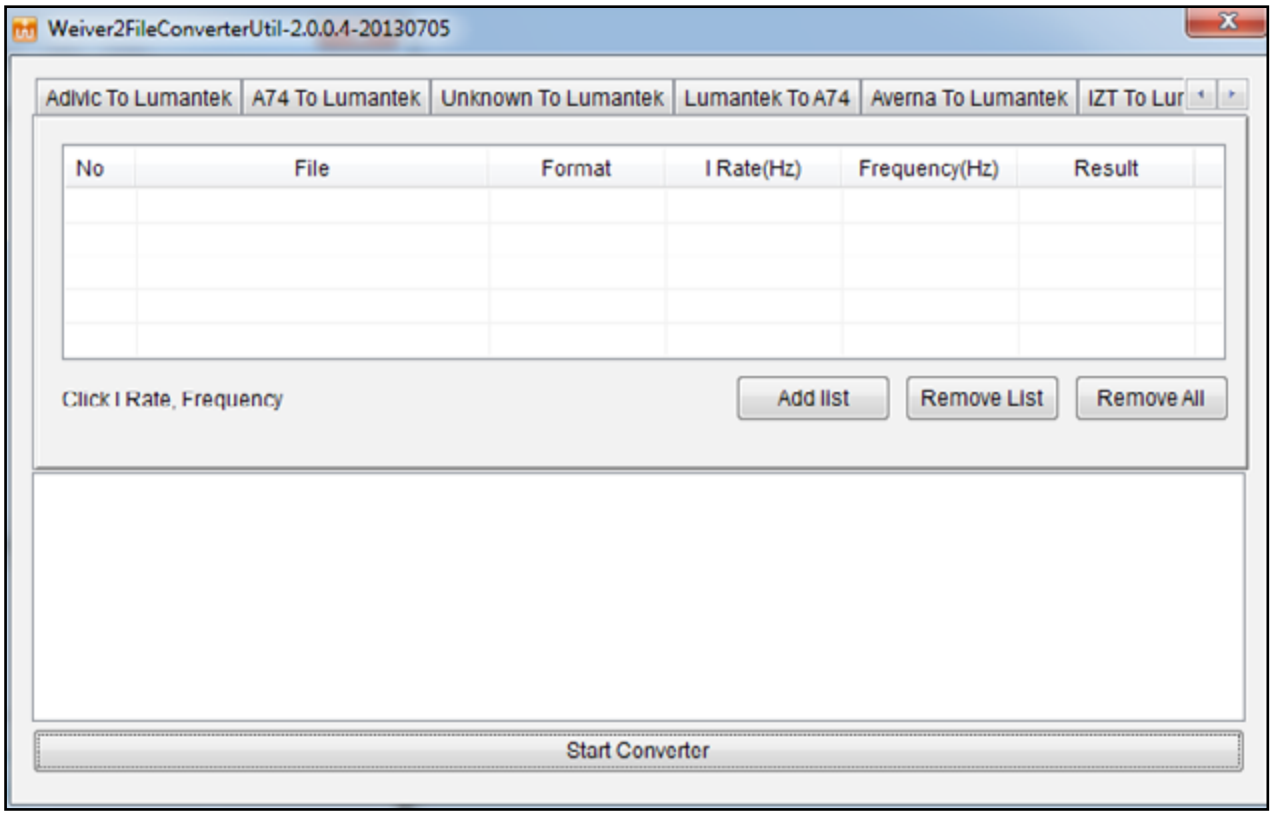


Click the start button on your OS and select WeiverFIleConverterUtil inside WeiverEX Program.

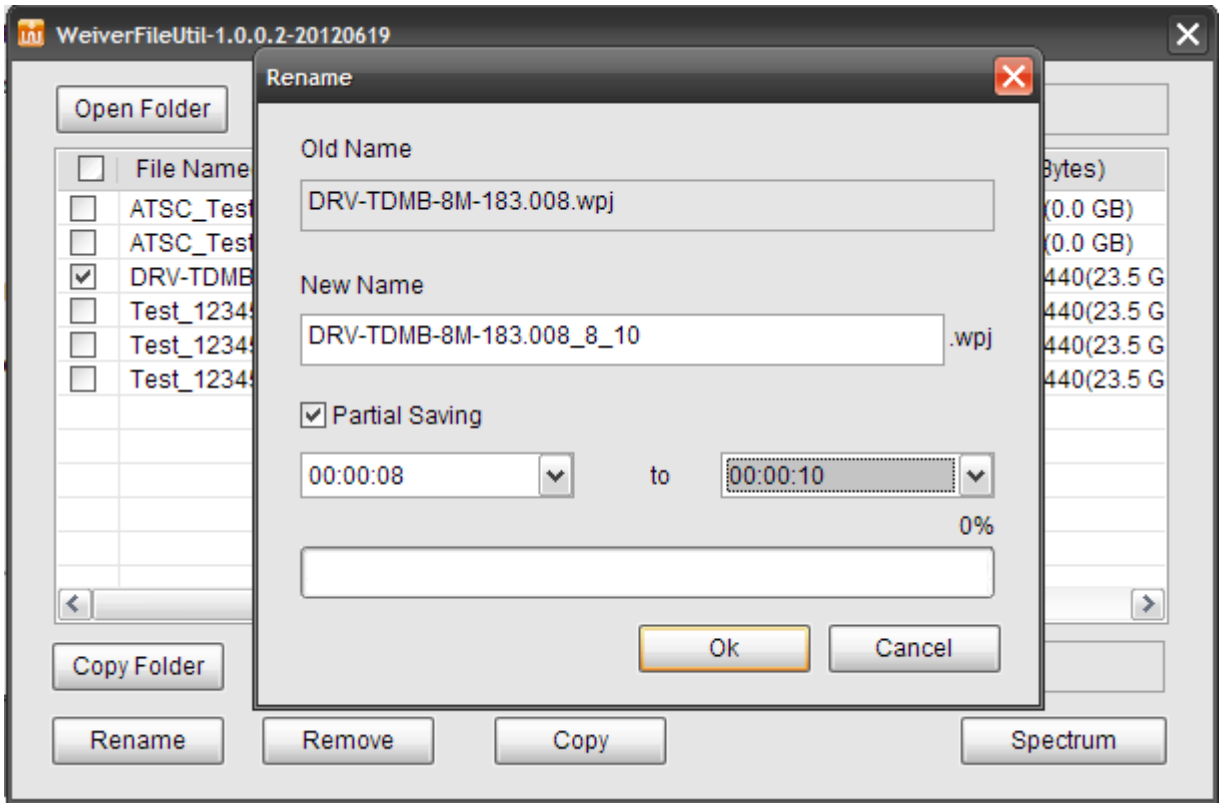
Once you get the window for converting, 'Complex type' files can be played on WEIVER.

For Real type file, WeiverFileConverterUtil converts it into Complex type one and generates Log data.
For Complex type file, Log data is generated.

When Real type file is converted, two files generate with *.iqw and *.wpj extensions.
In case of converting Complex type file, Log data will be generated and one file with wpj extension.



- **WEIVER File Util**

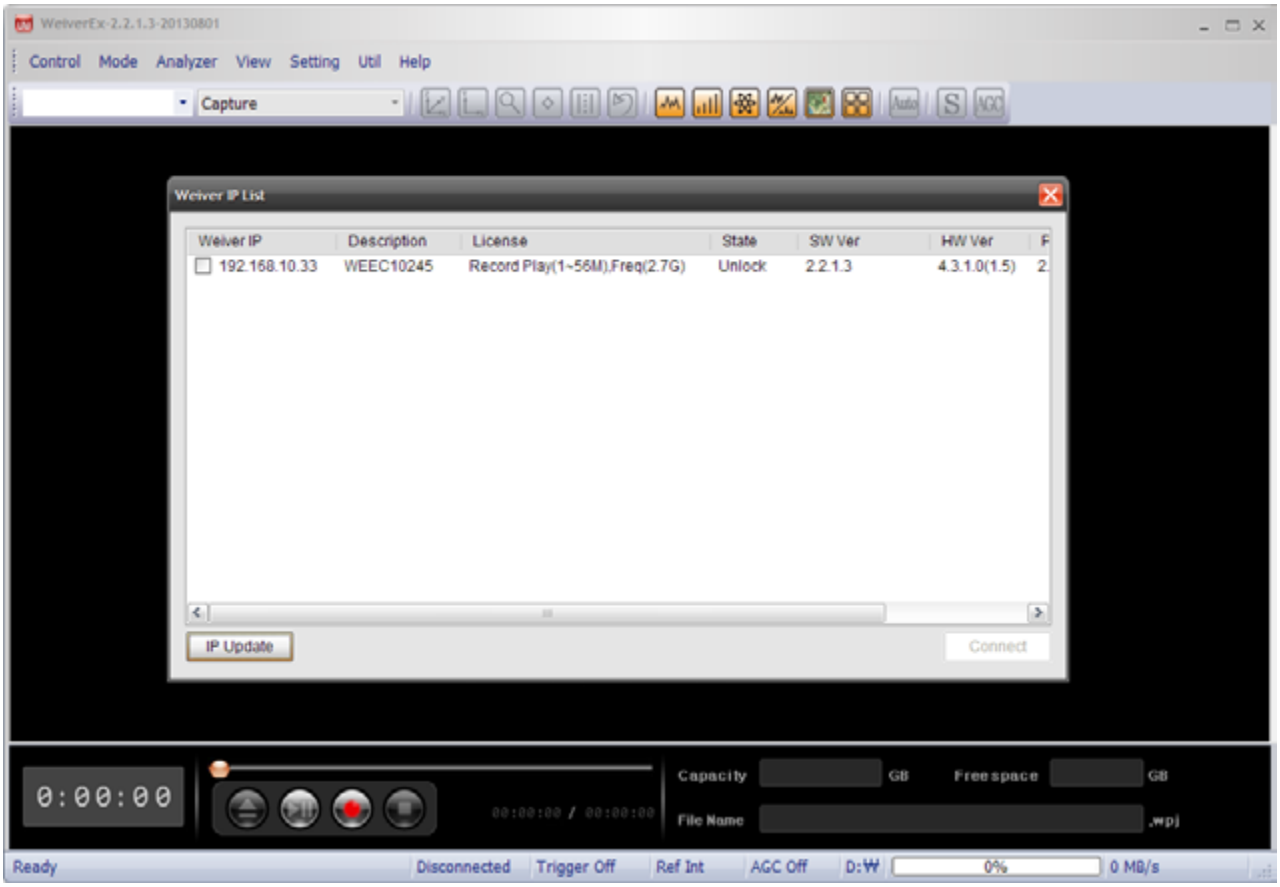


Run WEIVER file util, and select the original stream to extract part you want.

3.9 / WeiverEX Program Introduction

When the WeiverEx program is initiated, the WEIVER unit is not yet connected. To proceed with connecting the WEIVER, follow the following sequence:

Select Main Menu -> Control-> Connect the device and search WEIVER


WeiverEx-2.2.1.3-20130801
Control Mode Analyzer View Setting Util Help
Capture
Weiver IP List
Weiver IP Description License State SW Ver HW Ver
192.168.10.33 WEEC10245 Record Play(1~56M),Freq(2.7G) Unlock 2.2.1.3 4.3.1.0(1.5)
IP Update
Connect
0:00:00
Capacity GB Freespace GB
File Name .wpj
Ready Disconnected Trigger Off Ref Int AGC Off D:₩ 0% 0 MB/s

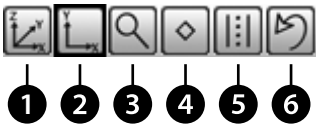
To connect with WEIVER, a separate WEIVER IP List sub-window will appear.
There are various methods of connecting the WEIVER. For most of the methods during IP Search, the subnet of the WEIVER unit and control PC must be matched to connect for security purposes properly.

Once the WEIVER has successfully connected another window will display "Connected!"

Once the WEIVER has successfully connected, the WEIVER will respond according to the selected mode (Capture or Playback).

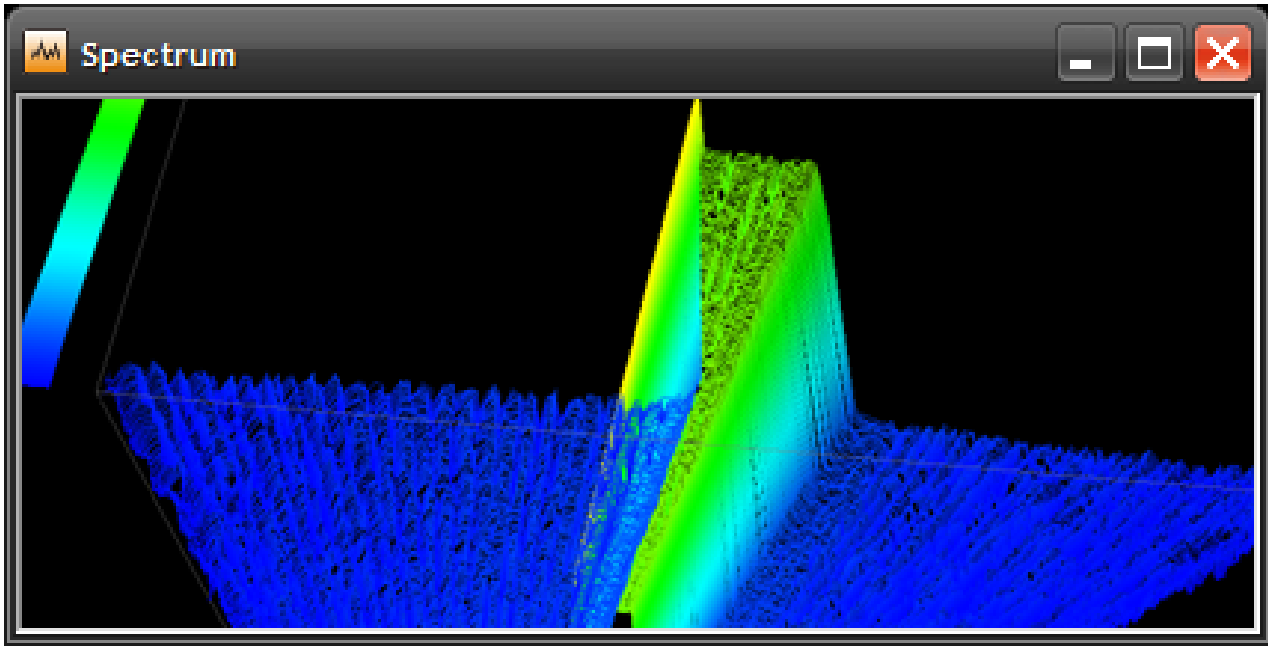
For the Capture mode, the WeiverEX program will display the incoming RF as a spectrum. Further, the Play mode will playback captured data and transmit.

- **Analyzer Menu**



The Analyzer Menu has five kinds of features in measuring or observing the Spectrum from Zoom to Undo. (3D Spectrum Analyzer, 2D Spectrum Analyzer, Spectrum Zoom in Analyzer, Spectrum Power Marker, Band Power Analyzer, State Undo)

❶ 3D Spectrum Analyzer



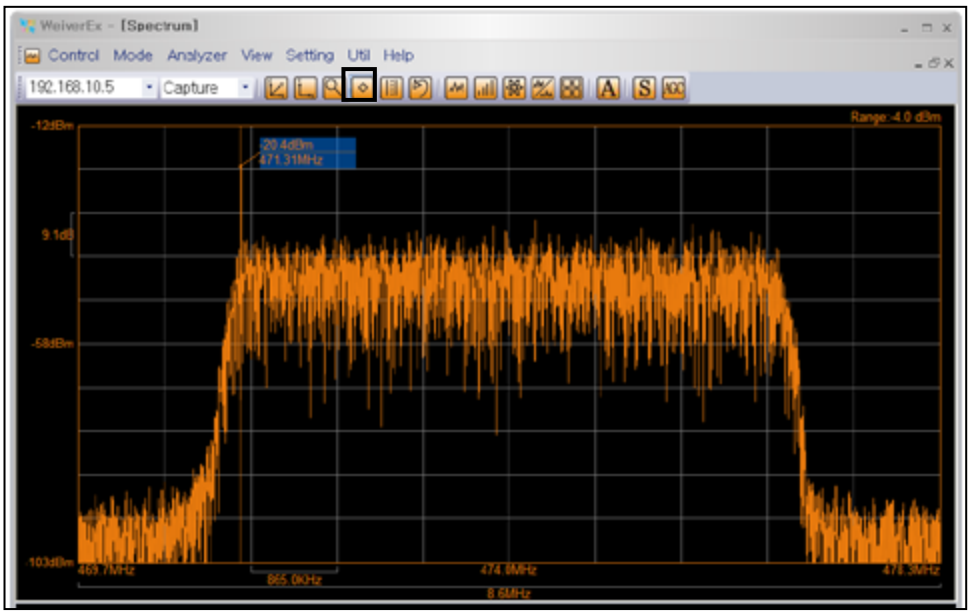
❷ 2D Spectrum Analyzer

❸ Spectrum Zoom in Analyzer

Zoom on the area by clicking first on the left mouse button and dragging to the preferred point and then clicking on the left mouse button. The area the user has selected will be highlighted.

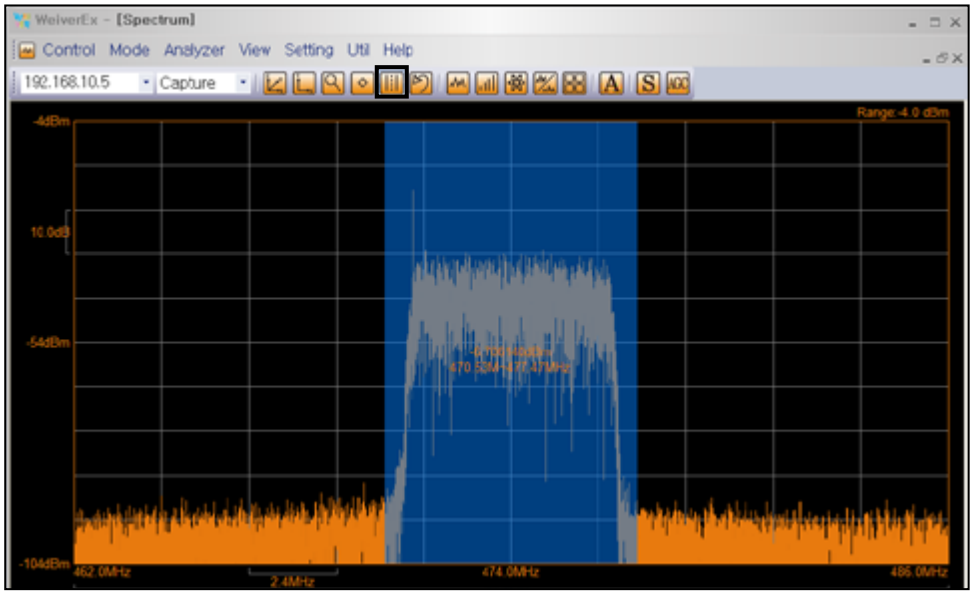
If you want to zoom back to the previous screen, or to the original state, click on simultaneously press Ctrl and Z.

4 Spectrum Power Marker

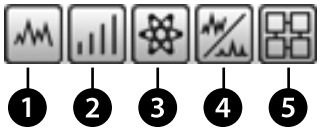


5 Band Power Analyzer

The Band Power can be measured by clicking the left mouse button and dragging. Once the area has been selected, clicking the left mouse button will disengage and the results will be shown.



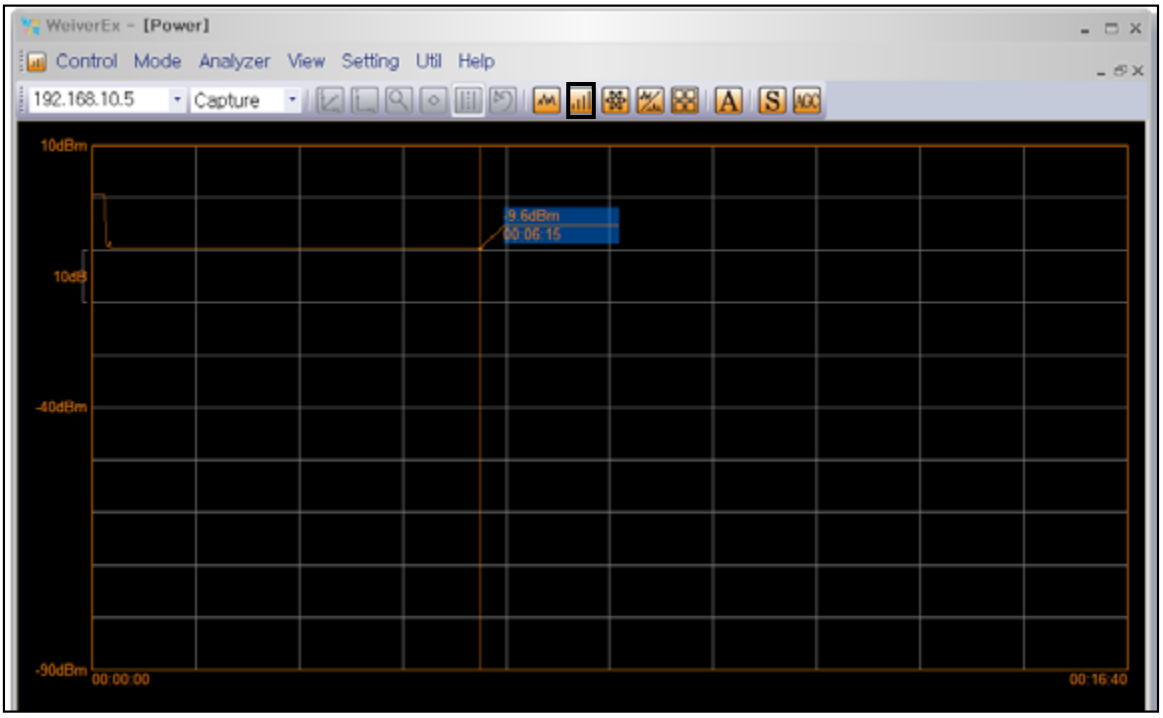
- **View Menu**



WeiverEX has four sub-windows (with dedicated functions) in the main window. Each sub-window can be repositioned and resized. Further, the Auto Window Position function will automatically resize and reposition the four windows by Auto Window Position. 5 (Spectrum Window, Power Window, GPS Window, I/Q Window, Auto Window Position)

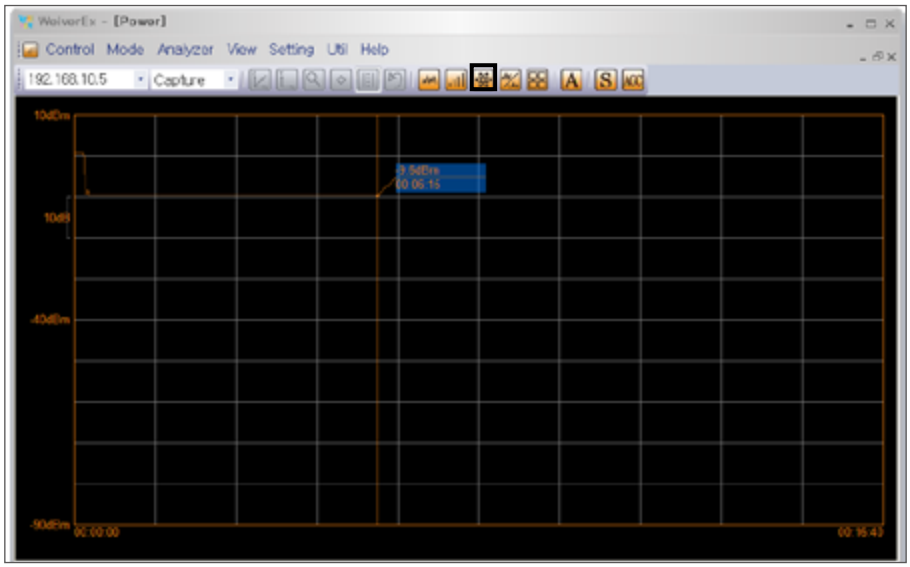
2 Power Graph

I,Q data power values and the down converter's actual gain value will be calculated in second by second and displayed. Values in the power graph are the actual coming RF IN power.



❸ GPS Graph

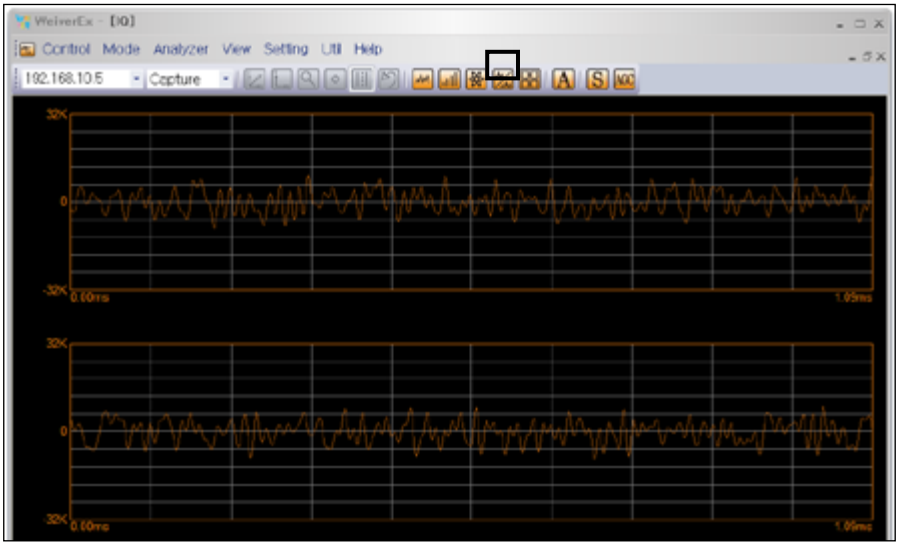
Displays current location (latitude, longitude) coordinates updated every second.



The sizes of the Spectrum Graph , IQ Graph , Power Graph , GPS Graph can be adjusted at the same time.

❹ IQ Graph (I:16bits, Q:16bits)

In the capture mode, there is an advantage to capture while the user's looking at I, Q graphs. I, Q is asigned 16bit integer value (maximum value 32,767, the minimum -32,768) and when transmitting arbitrary I, Q files created by users, WEIVER will produce the most excellent RF signal when I/Q 16 bit signal has full swing.



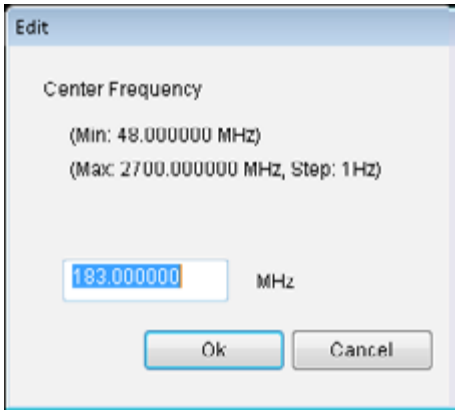
- **Capture Mode**

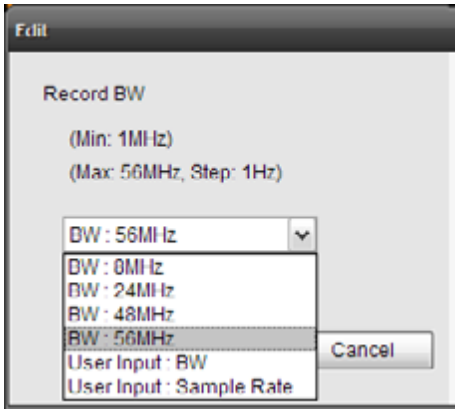
In the Capture Mode, WEIVER will not capture the RF signal automatically but stay in Preview state. To capture the RF signal, press the record button. The center frequency of the spectrum will be displayed in the center of the spectrum window.

- Before starting RF capture the data file name should be entered, RF capture will be operating by pressing the Record Button.

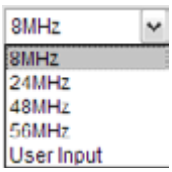
- To stop the RF Capture click on the Stop button .

- Users can type the file names. Without input from the record button pressed, the name will be saved automatically.





- The Frequency and record BW can be changed by moving the mouse wheel or by entering in the numbers.



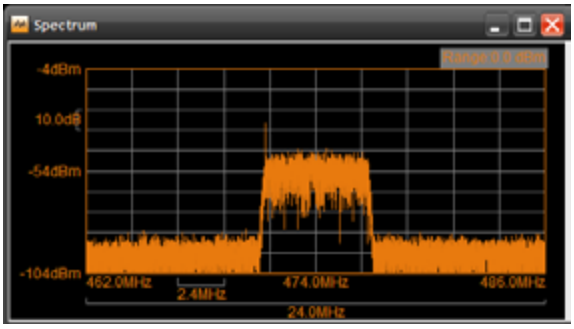
The input range for optimizing the RF signal power can be adjusted by clicking on the mouse wheel.

Optimize or select Auto Power Adjustment to optimize the power of the RF signal. The range must be higher than the actual RF IN power for getting a optimal RF signal. (ex. Range> RF IN Power)

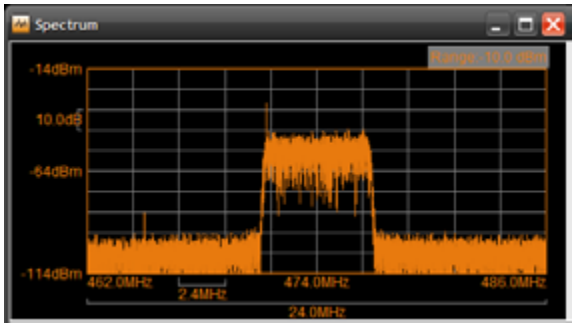
If the signal is less than or equal to the power, change the Range.

<u>* Relation between RF IN Power and Range</u>

- Source RF Power -20 dBm / Range 0.0 dBm



- Source RF Power -20 dBm / Range -10.0 dBm

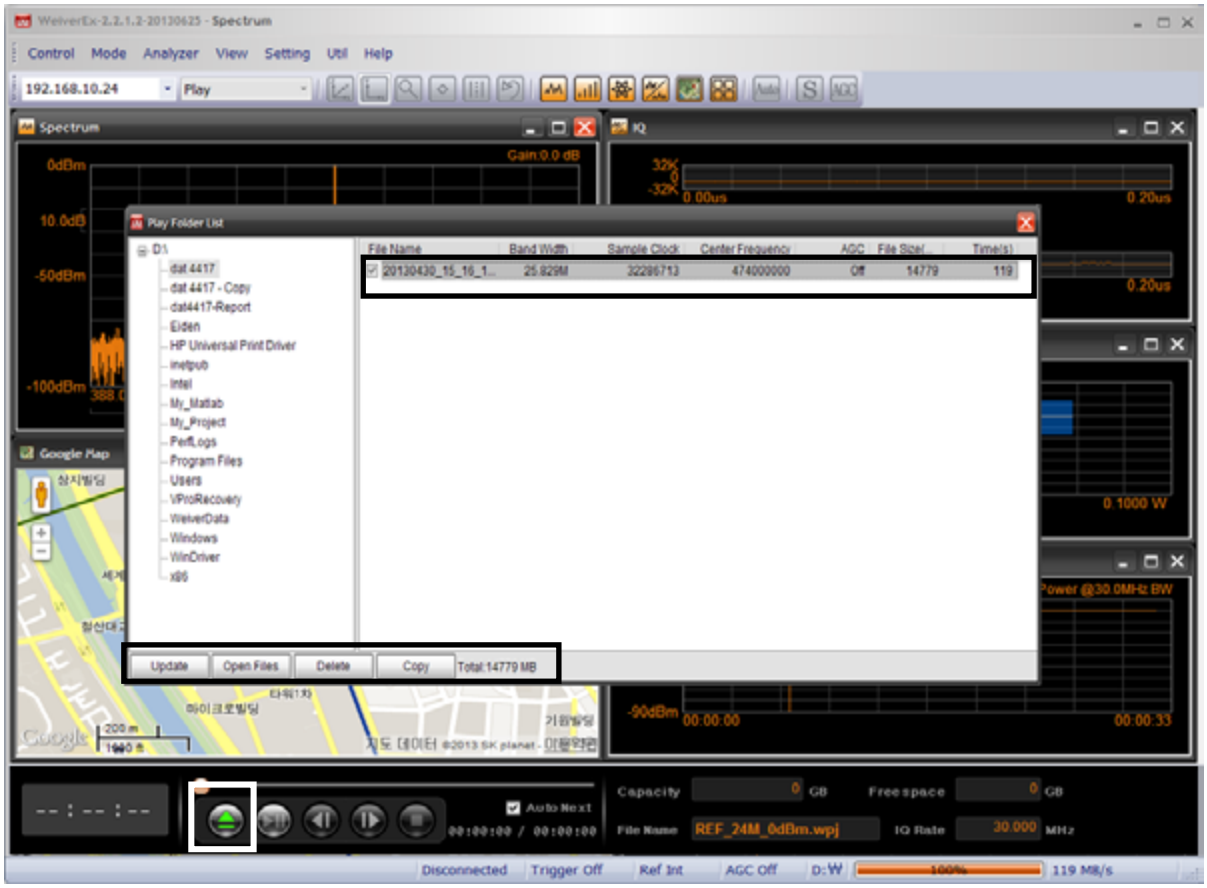


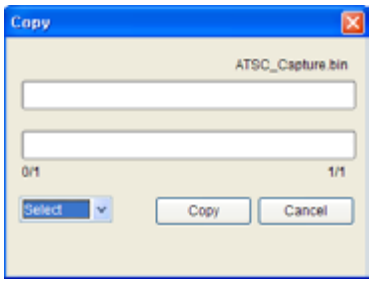
- Play Mode

The data files stored in a capture mode are generated in two types(File Name.iqw, File Name.log).
File Name.iqw is stored in the order of [I : 2Bytes, Q 2Bytes], File Name.log includes the records of Name.iqw file additional information. If File Name.log doesn't exist, Band Width is represented by the ARB, you can play the file by typing IQ rate and the Center Frequency .

To play back the captured RF data files. Please go to Playmode and open the list of captured data files.

Click on the File Open button

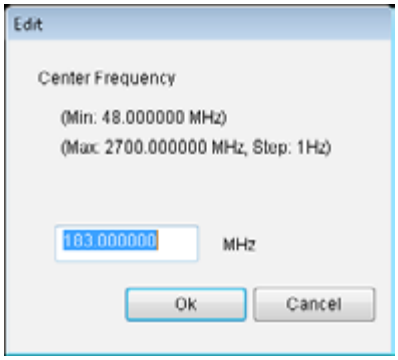


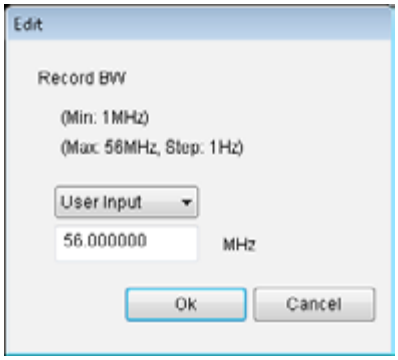


To delete a saved file, check the box next to the file name and click the Delete button.
To backup or to copy the files, check the boxes adjacent to the file name and click the Copy button. Select the save path (e.g., E:\)

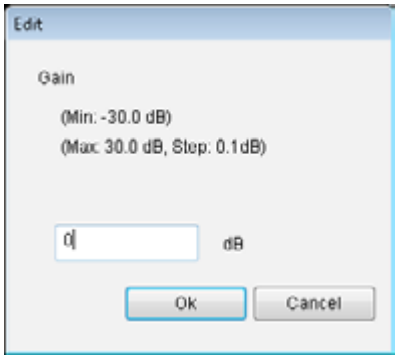
To play, check the relevant box adjacent to the file and click the play button .

To stop play, click on the Stop button.





The frequency can be changed with the mouse wheel or by double-clicking and entering in the figures.



The transmission power can be changed with the mouse wheel or by double-clicking and entering the figures.

3.10 / WEIVER Power Button

Press the button to power on
Press again to power off

Press the Reset button to reset WEIVER

REAR

3.11 / WEIVER LED Signal

RF IN(HF Normal, HF Low Noise, HF Normal)
RF Capture function is operating properly with steady blinking

RF OUT
Playback function is operating properly with steady blinking

GPS
The LED will remain on when the GPS is operating properly. Steady blinking will mean it is not operating properly.

POWER
When WEIVER is operating, the power LED will be on

TRIGGER IN / OUT

FRONT

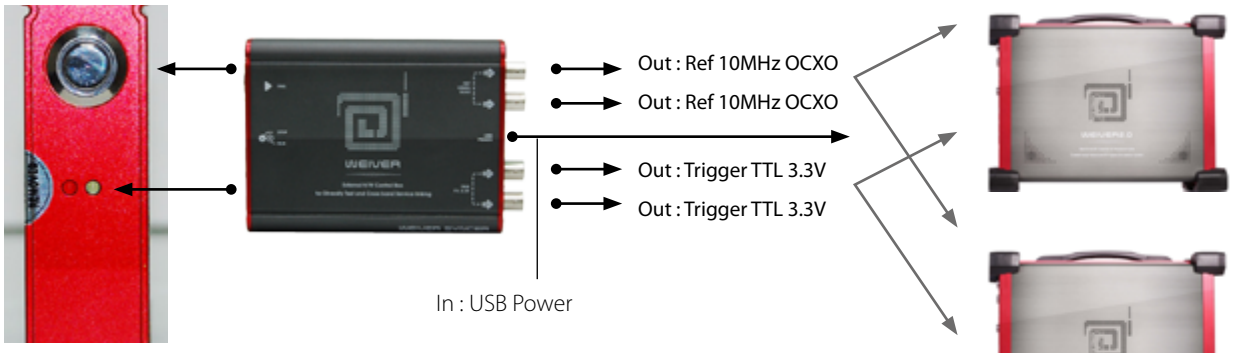
3.12 / WEIVER Syncer Operation(Optional)

WEIVER Syncer Specification

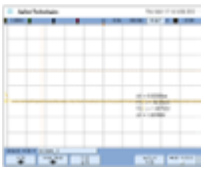
10MHz OCXO Specification	values
Freq. Stability vs. Temp	±50 ppb max.
Aging per Year	±500 ppb max.
Warm-Up @ 25 ºC	±500 ppb max. (In ≤ 3-Minutes)
REF 10MHz Output PWR.	+7dBm ±1dB
POWER Specification	**values**
Supply Voltage	+5.0 VDC
Power Consumption	Max. 2 Watts
Trigger TTL Specification	**values**
TRIG Button "RUN"	Output Voltage +3.3VDC
TRIG Button "STOP"	Output Voltage 0 VDC

- **Syncer Description**

External trigger for running multiple WEIVERs

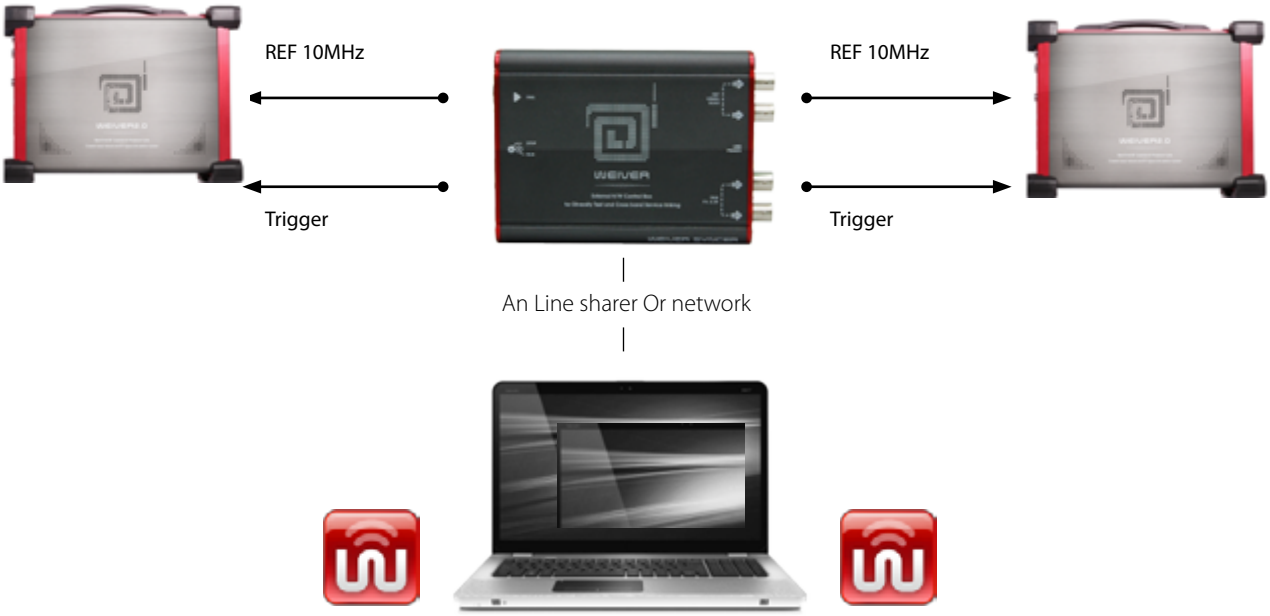


Syncer Sideview

LED	Button	OUT	
		Ref 10MHz	Trigger Level
Green	Push		3.3 V
Red	Push		 0 V

- **CASE 1**

There are 3 cases for WEIVER Syncer option.



- **CASE 2**

Laptop (WeiverEx is running)

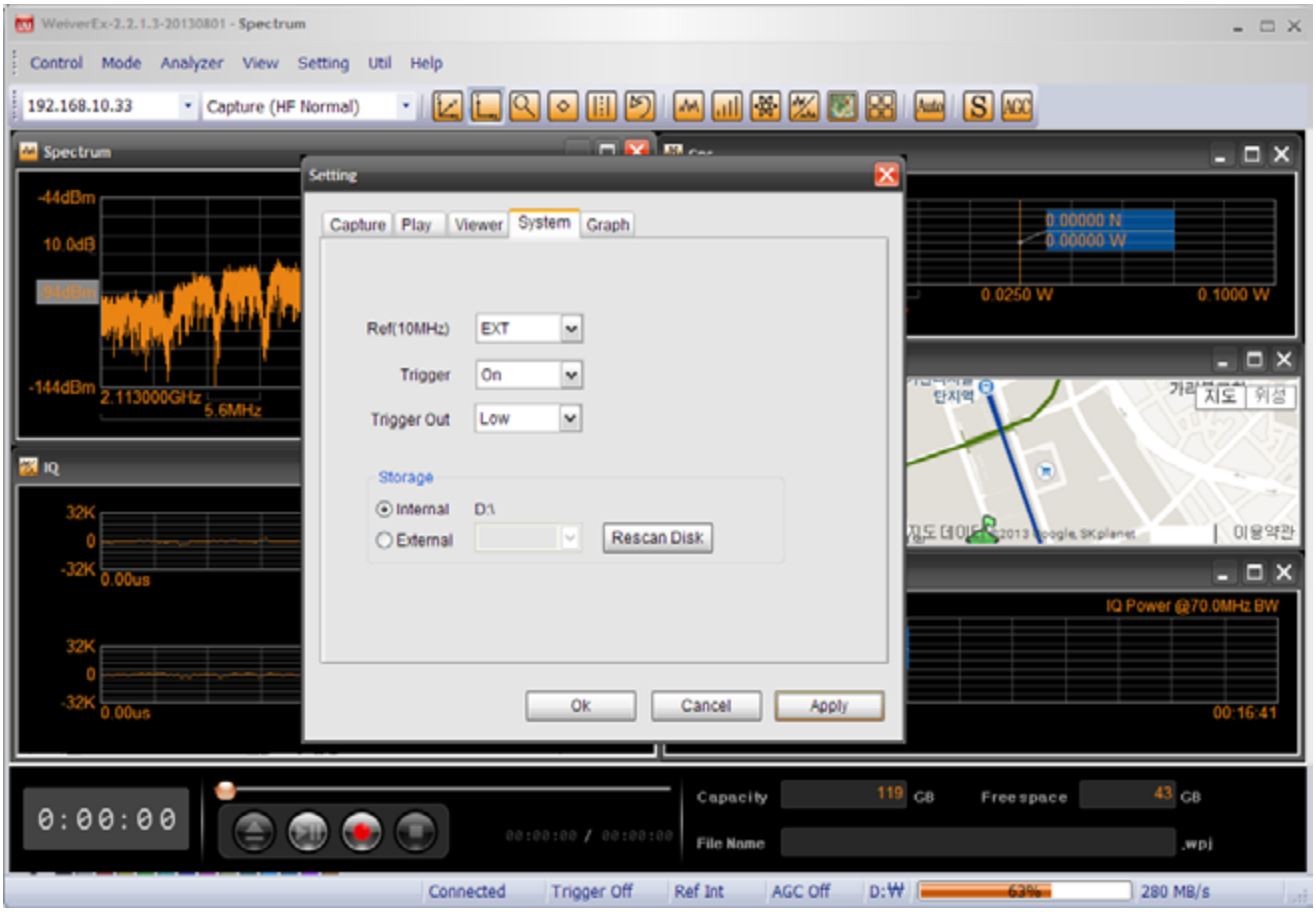
Laptop (WeiverEx is running)

- **CASE 3**

Connecting with display and Keyboad
(WeiverEx is running at the WEIVER)

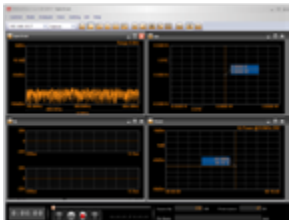
Connecting with display and Keyboad
(WeiverEx is running at the WEIVER)

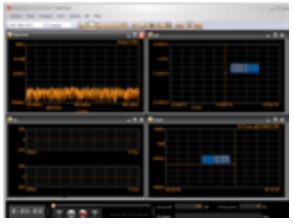
- **Prep for the trigger function (S/W)**



- **Record - Preview Mode**

LED	Button	OUT	
		Ref 10MHz	Trigger Level
Green	Push		3.3 V
Red	Push		0 V

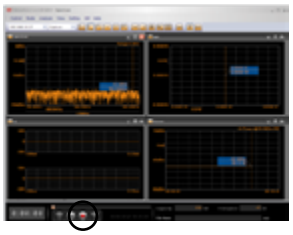
Refresh → 

No Refresh → 

- **Record – Record Mode**

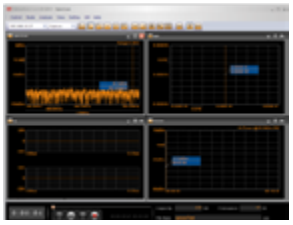
LED	Button	OUT	
		Ref 10MHz	Trigger Level
Red ❶	Push		0 V
Green ❷	Push		3.3 V
Red ❸	Push		0 V

Refresh

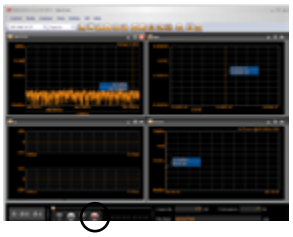


After a file name inputs,
click record button (circle marked)

Refresh

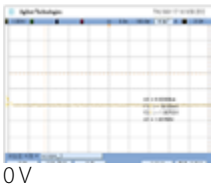


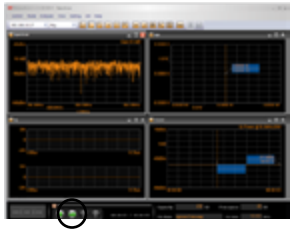
No Refresh



After some pauses,
click record stop button(circle marked)

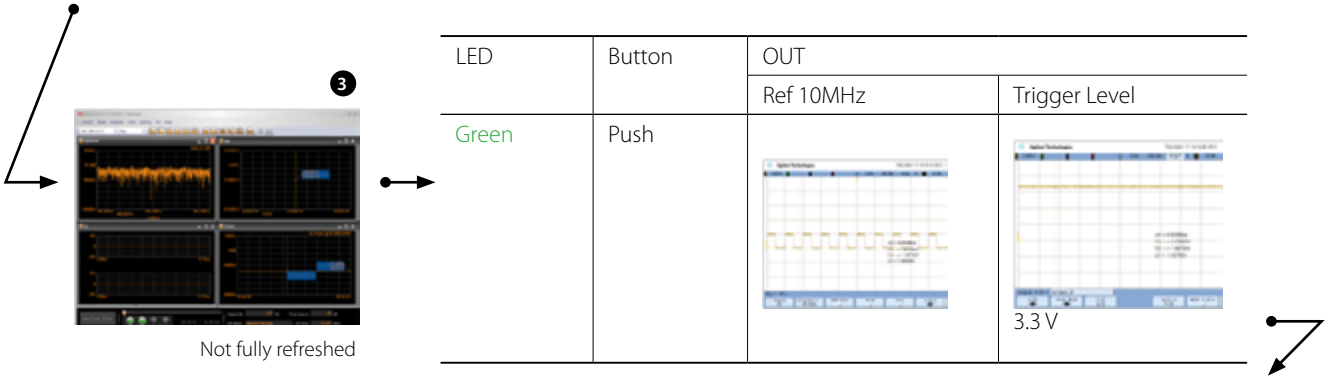
- **Play – RF Play Mode**

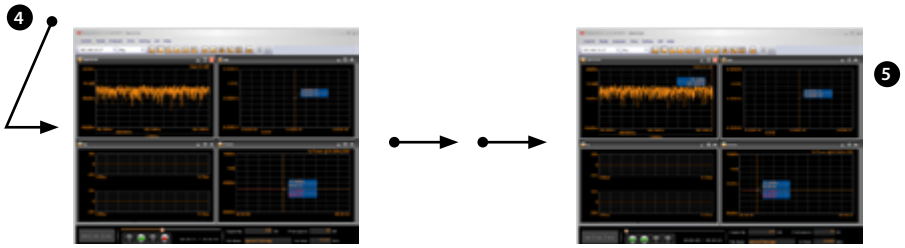
LED	Button	OUT	
		Ref 10MHz	Trigger Level
Red ❶	Push		 0 V



❷

After opening file,
click play start button (circle marked)





- **Record Mode**

BW:24MHz or 8MHz
Center Frequency : xxx MHz

Recording

BW:24MHz or 8MHz
Center Frequency : xxx MHz

Recording

[File1.wpj] ——— File Size is the same. ——— **[File2.wpj]**

- **Play Mode**

BW:24MHz or 8MHz
Center Frequency : xxx MHz

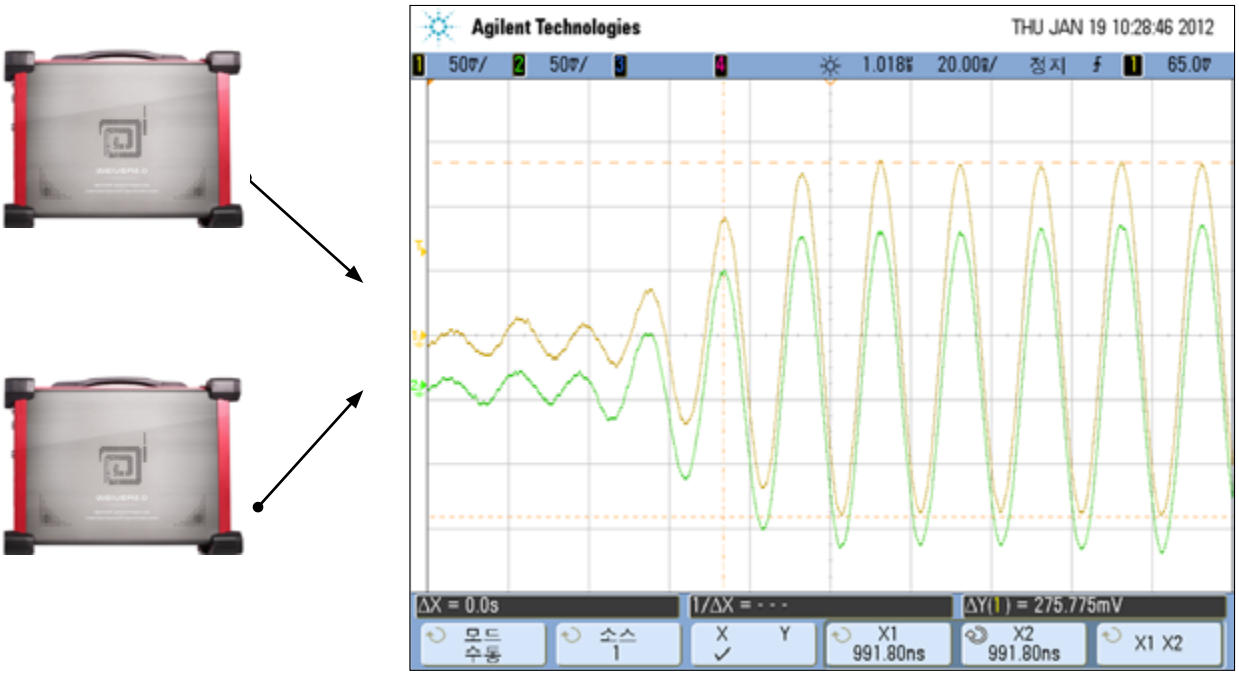
Play

[File1.wpj] ——— Phase Error ?? ——— **[File2.wpj]**

BW:24MHz or 8MHz
Center Frequency : xxx MHz

Play

- **Play Mode - Test result** Ideal Case



3.13 / WEIVER Bias-Tee Operation(Optional)

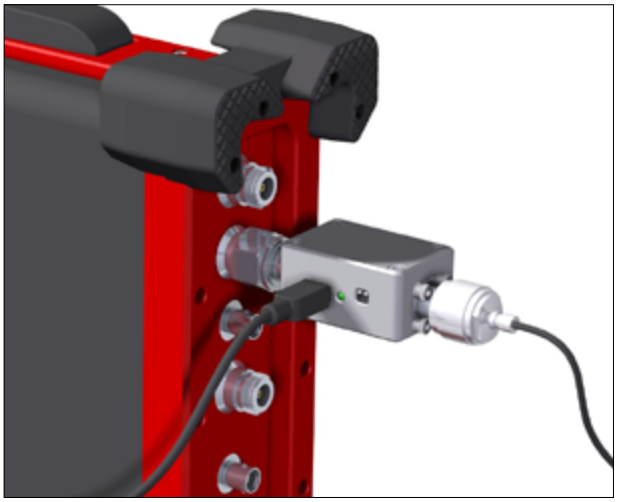
1) What is BIAS-TEE?
A T-shaped component attached to the signal cable to supply power to the antennas

2) Purpose?
Amplifier (LNA, TR, FET and etc) circuits are configured in close proximity to the antennas to improve receive sensitivity, and a separate DC power supply (DC) is required to activate these active elements.

3) Specification

FQ. Range	48MHz to 2700MHz
Insertion Loss	Max. 1dB
Output Current	Max. 200mA
DC Output Voltage	+5V, +6V, +8V, 12V

4) Installation instructions
Please refer to the picture below.



API

WEIVER 1.0 / WEIVER 2.0 (playmode only)
WEIVER Player 1.0 / WEIVER Player 2.0

By LUMANTEK

4. WEIVER API / INTRODUTION

4.1 / Description

There are three ways to control the Weiver

1. Using the buttons at the front panel (WEIVER Player only)
2. Using an operating software, the WeiverEx
3. Using API

The first and second method is supported all previous versions of the WEIVER software, however, the third method can be supported from the WeiverPlayer1.0 software version 2.1.2.0. / WEIVER player 2.0 SW 2.2.0.0 / WEIVER 1.0/2.0 SW 2.2.1.1 Hence, if previous version is installed in the WeiverPlayer, API function is not able to use.

[WEIVER 2.0 Player]

[WEIVER Player Software]

4.2 / WEIVER API Performance property

The WeiverEx software connects the Weiver software as IP and send UDP packets to run the WEIVER. We have opened the Weiver API example program and packet information because the purpose of the WEIVER API is to control the WEIVER without the WeiverEx software. You can download reference sources at Lumantek website. (http://www.lumantek.com/support/download.html)

The contents in the below are the structure of API packets (ref.:WvPlayerRemoteAPI.h).

```
#define     WEIVER_PLAYER_ID                    0x057b50b7
#define     WEIVER_PLAYER_API_RX_PORT           50504

#define     REMOTE_STRING_SUCCESS _T("Received")
#define     REMOTE_STRING_INVALIDE_PARAM _T("Invalid Param")

typedef enum _WvPlayerRemoteCMD_e
{
    WV_PLAYER_REMOTE_CMD_SET_STRING,
    WV_PLAYER_REMOTE_CMD_MAX
}WvPlayerRemoteCMD_t;

typedef struct _WvPlayerRemotePacket_t
{
    unsigned int u4_ID;// WEIVER_PLAYER_ID
    unsigned int u4_Reserved;//WV_PLAYER_REMOTE_CMD_SET_STRING
    unsigned int u4_DataSize;
    unsigned char u1a_Data[1000];
}WvPlayerRemotePacket_t, *WvPlayerRemotePacket_tp;
```

For controlling the WEIVER via API, an UDP Port (50504) has been opened. Hence, if data is added to 'WvPlayerRemotePacket' structure, the WEIVER program is running with these packet data.

These open sources are for Windows but can be applied to other OSs.
Before explaining the command list, we have five conditions of the program (WEIVERRemoteAPI.exe).

1. IP address of the WEIVER is 192.168.100.1.
2. An opened port number for API control is 50504 (fixed).
3. After sending packet to the WEIVER 1.0, a receiving port nuber is 50000 (variable).
4. One letter accounts for 2 byte respectively.
5. After sending the packet, 'Time out' occurs if there is no response.

4.3 / Data Packet structure

[connect 50000]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	26	L"connect 50000"
Size(Byte)	4	4	4	13x2

[disconnect]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	10x2	L"disconnect"
Size(Byte)	4	4	4	10x2

[rescandisk]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	20	L"rescandisk"
Size(Byte)	4	4	4	10x2

[openfile test.wpj]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	34	L"openfile test.wpj"
Size(Byte)	4	4	4	17x2

[get openfile]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	24	L"get openfile"
Size(Byte)	4	4	4	12x2

[play start]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	24	L"get openfile"
Size(Byte)	4	4	4	12x2

[play stop]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	18	L"play stop"
Size(Byte)	4	4	4	9x2

[play pause]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	20	L"play pause"
Size(Byte)	4	4	4	10x2

[play resume]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	22	L" play resume"
Size(Byte)	4	4	4	11x2

[get play_status]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	30	L"get play_status"
Size(Byte)	4	4	4	15x2

[set freq 400000000]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	36	L"set freq 400000000"
Size(Byte)	4	4	4	18x2

[set freq 400000000 hz]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	42	L"set freq 400000000 hz"
Size(Byte)	4	4	4	21x2

[set freq 400 mhz]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	38	L"set freq 400000 khz"
Size(Byte)	4	4	4	19x2

[set freq 400000 khz]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	38	L"set freq 400000 khz"
Size(Byte)	4	4	4	19x2

[get freq]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	16	L"get freq"
Size(Byte)	4	4	4	8x2

[get gain_min]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	24	L"get gain_max"
Size(Byte)	4	4	4	12x2

[get gain]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	16	L"get gain"
Size(Byte)	4	4	4	8x2

[get rf_out_level 1]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	36	L"get rf_out_level 1"
Size(Byte)	4	4	4	18x2

[set gain 100]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	24	L"set gain 100"
Size(Byte)	4	4	4	12x2

[set gain -100]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	26	L"set gain -100"
Size(Byte)	4	4	4	13x2

[get play_time_total]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	38	L"get play_time_total"
Size(Byte)	4	4	4	19x2

[get play_time_current]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	42	L"get play_time_current"
Size(Byte)	4	4	4	21x2

[set play_time_current 5]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	46	L"set play_time_current 5"
Size(Byte)	4	4	4	23x2

[get play_section]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	32	L"get play_section"
Size(Byte)	4	4	4	16x2

[get play_section]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	32	L"get play_section"
Size(Byte)	4	4	4	16x2

[set play_section 10 20]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	44	L"set play_section 10 20"
Size(Byte)	4	4	4	22x2

[get spec_inv]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	24	L"get spec_inv"
Size(Byte)	4	4	4	12x2

[set spec_inv off]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	32	L"set spec_inv off"
Size(Byte)	4	4	4	16x2

[set spec_inv on]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	30	L"set spec_inv on"
Size(Byte)	4	4	4	15x2

[get sample_rate]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	30	L"get sample_rate"
Size(Byte)	4	4	4	15x2

[set sample_rate 10000000]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	48	L"set sample_rate 10000000"
Size(Byte)	4	4	4	24x2

[set sample_rate 10000000 hz]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	54	L"set sample_rate 10000000 hz"
Size(Byte)	4	4	4	27x2

[set sample_rate 10 mhz]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	44	L"set sample_rate 10 mhz"
Size(Byte)	4	4	4	22x2

[set sample_rate 10000 khz]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	54	L"set sample_rate 10000 khz"
Size(Byte)	4	4	4	27x2

[set trigger_out_level low]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	50	L"set trigger_out_level low"
Size(Byte)	4	4	4	25x2

[set trigger_out_level high]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	52	L"set trigger_out_level low"
Size(Byte)	4	4	4	26x2

[get trigger_out_level]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	42	L"get trigger_out_level"
Size(Byte)	4	4	4	21x2

[set extclk off]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	28	L"set extclk off"
Size(Byte)	4	4	4	14x2

[set extclk on]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	26	L"set extclk on"
Size(Byte)	4	4	4	13x2

[get extclk]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	20	L"get extclk"
Size(Byte)	4	4	4	10x2

[get trigger_in]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	28	L"get trigger_in"
Size(Byte)	4	4	4	14x2

[set trigger_in off]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	36	L"set trigger_in off"
Size(Byte)	4	4	4	18x2

[set trigger_in on]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	34	L"set trigger_in on"
Size(Byte)	4	4	4	17x2

[set current_directory d:\ ]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	50	L"set current_directory d:\"
Size(Byte)	4	4	4	25x2

[set current_directory d:\WeiverData]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	70	L"set current_directory d:\WeiverData"
Size(Byte)	4	4	4	35x2

[get current_directory]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	42	L"get current_directory"
Size(Byte)	4	4	4	21x2

[get file_count]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	28	L"get file_count"
Size(Byte)	4	4	4	14x2

[get filename 0]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	28	L"get filename 0"
Size(Byte)	4	4	4	14x2

[get folder_count]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	32	L"get folder_count"
Size(Byte)	4	4	4	16x2

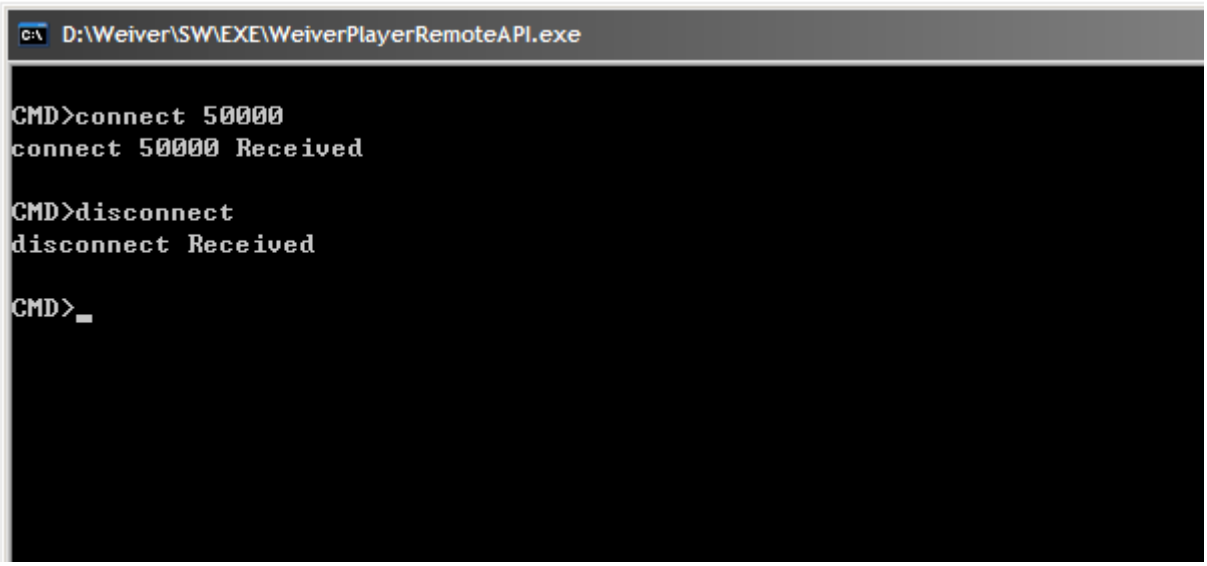
[get foldername 0]

Type	ID	Reserved	Data Size	Data
Data	0x057b50b7	0	32	L"get foldername 0"
Size(Byte)	4	4	4	16x2

4.4 / Command List

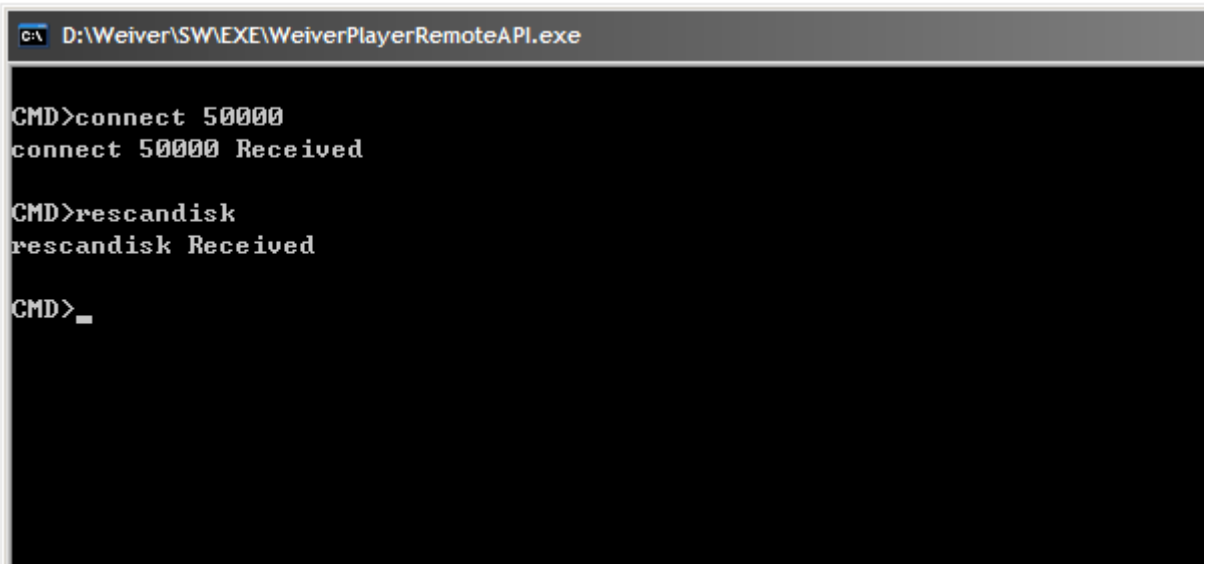
- Connect, disconnect command,

  Example) 1. connect 50000,
  2. disconnect



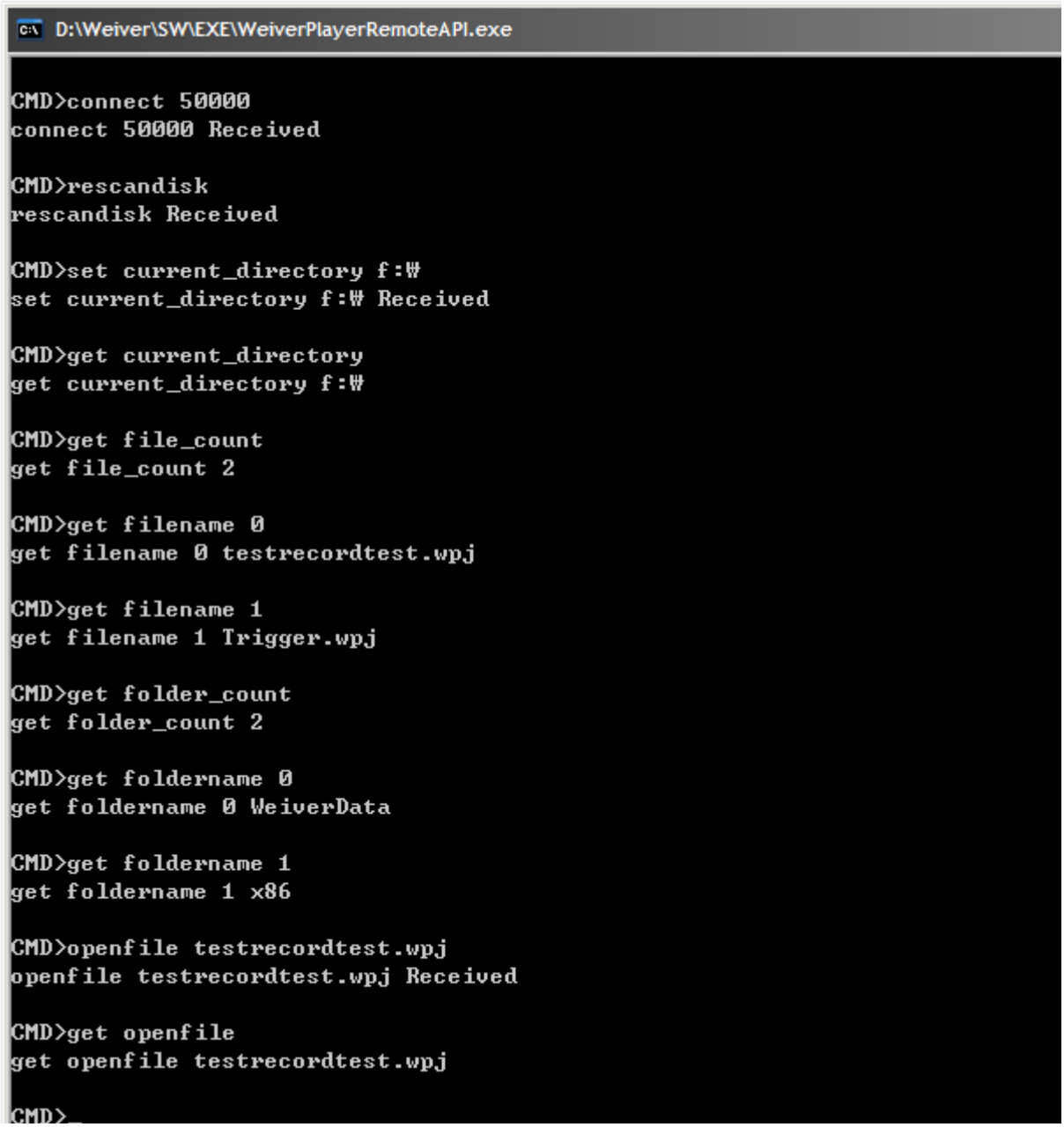
- rescandisk command,

  Example) 1. rescandisk



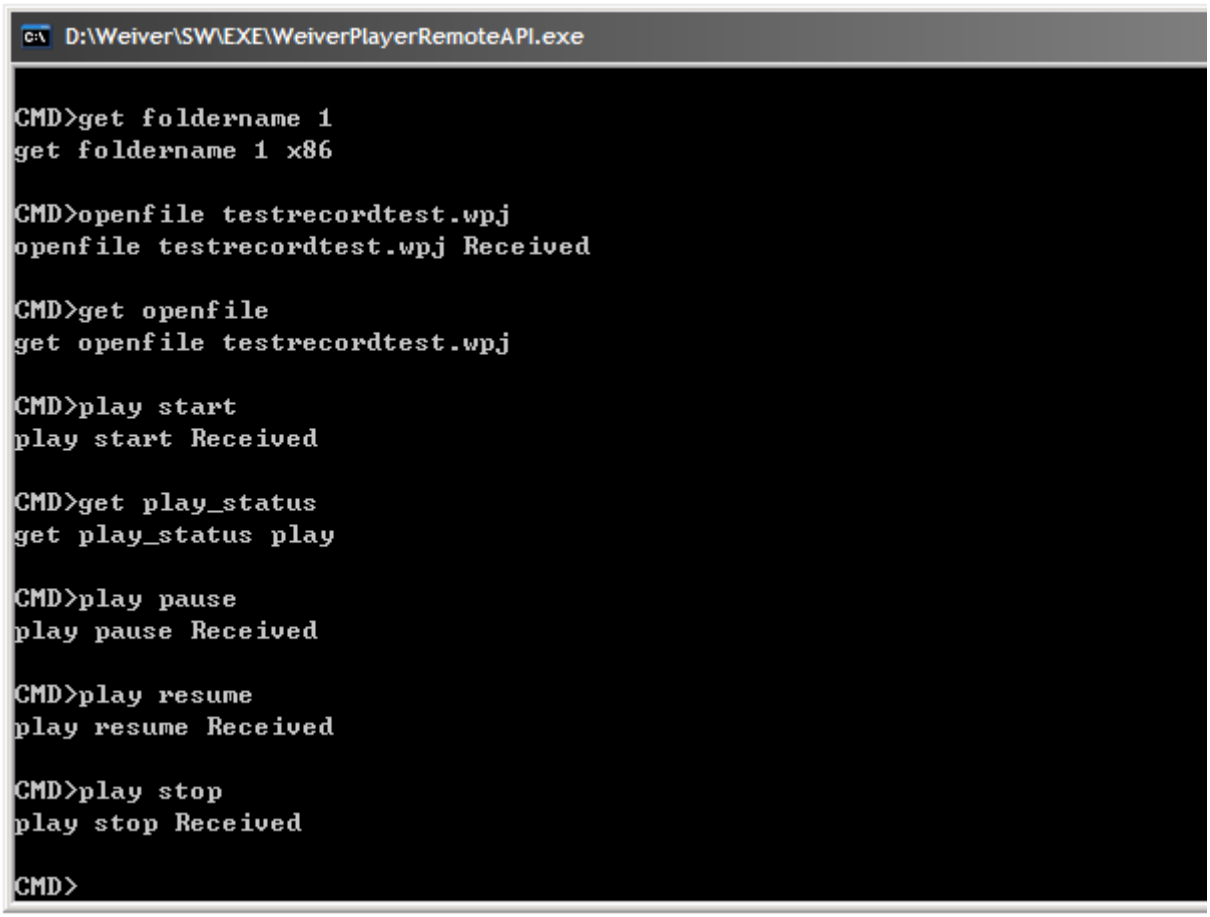
- set current_directory, get current_directory command
  get file_count, get filename, get folder_count, get foldername command
  openfile, get openfile command

  Example) 1. set current_directory f:\
  2. get current_directory
  3. get file_count
  4. get filename 0
  5. get filename 1
  6. get folder_count
  7. get foldername 0
  8. get foldername 1
  9. openfile testrecordtest.wpj
  10. get openfile



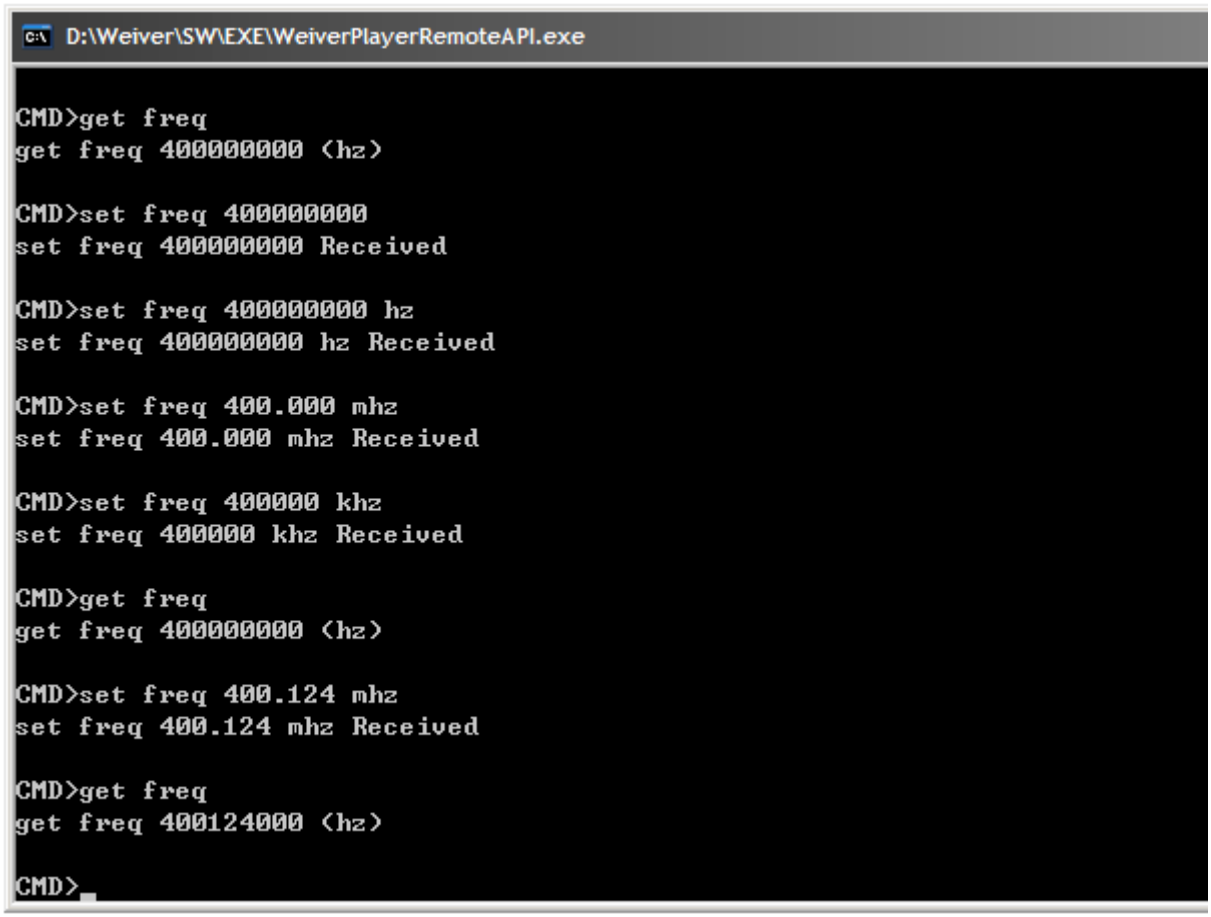
- play start, play stop, play pause, play resume, get play_status command

  Example) 1. play start
  2. get play_status
  3. play pause
  4. play resume
  5. play stop



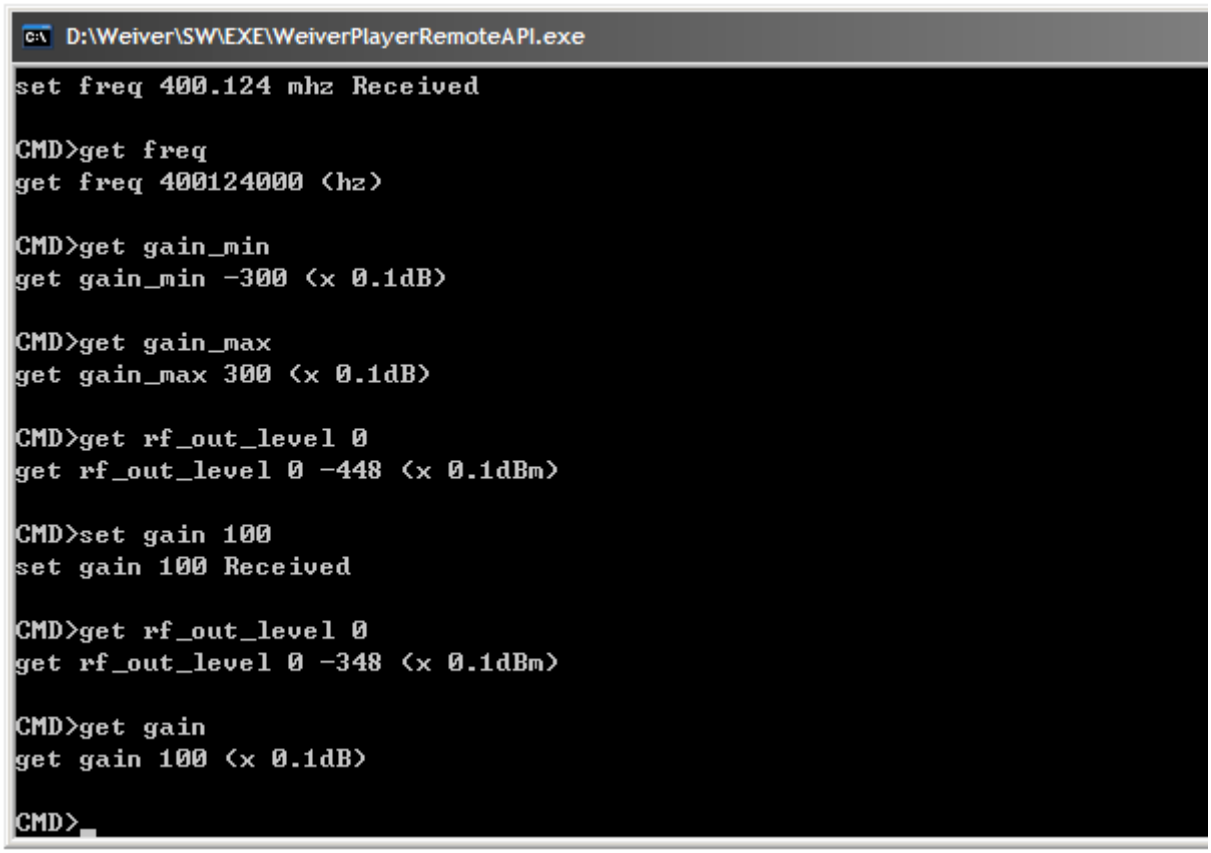
- set freq, get freq command

  Example) 1. set freq 400000000 (400MHz setting)
  2. get freq
  3. set freq 400 MHz (400MHz setting)
  4. set freq 400000 KHz (400MHz setting)
  5. set freq 400000000 Hz (400MHz setting)



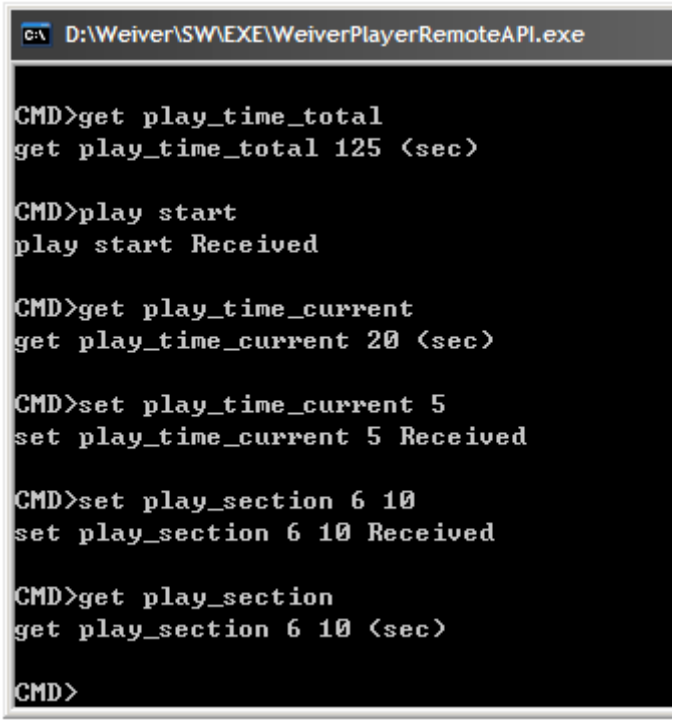
- get gain_min, get gain_max, get rf_out_level 0, get gain, set gain command

  Example) 1. get gain_min
  2. get gain_max
  3. get rf_out_level 0
  4. set gain 100
  5. get rf_out_level 0
  6. get gain



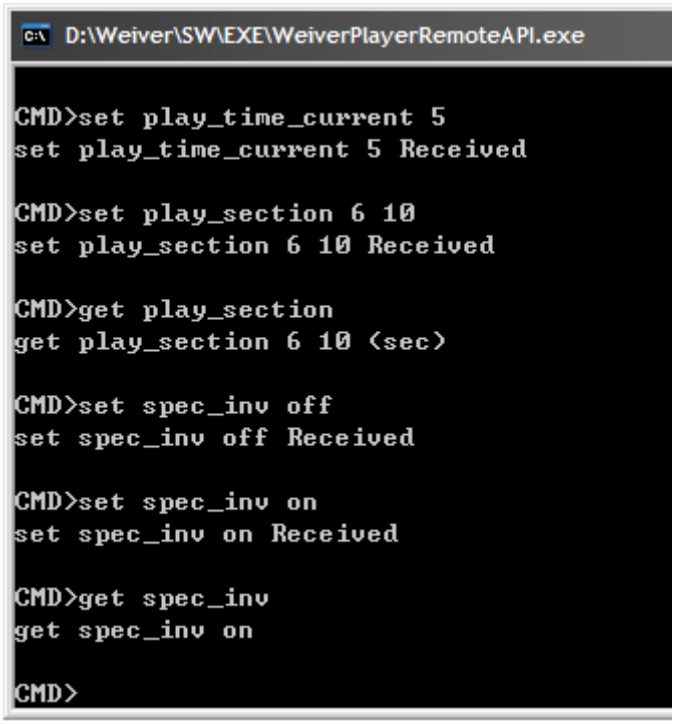
- get play_time_total, get play_time_current, set play_time_current, get play_section, set play_section command

Example) 1. get play_time_total
2. get play_time_current
3. set play_time_current 5
4. set play_section 6 10
5. get play_section



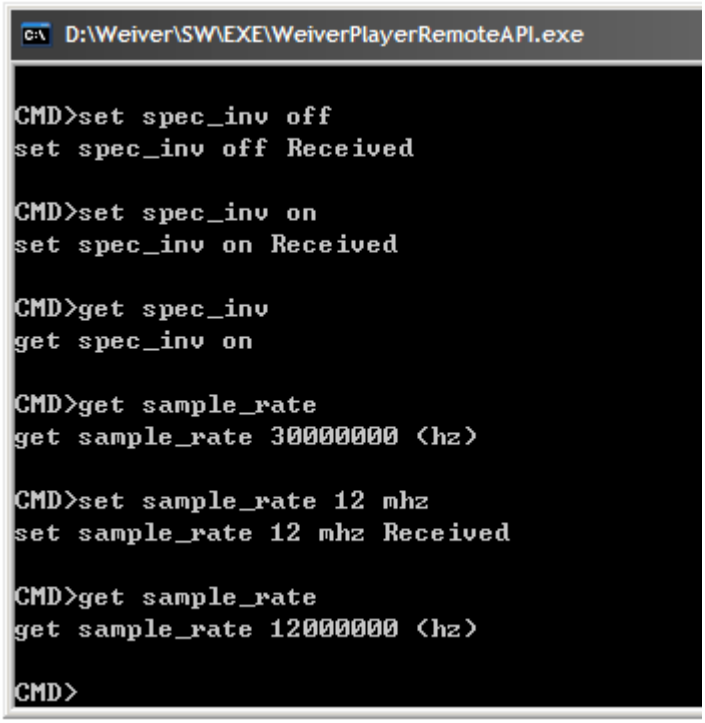
- set spec_inv off/on, get spec_inv command

Example) 1. set spec_inv off
2. set spec_inv on



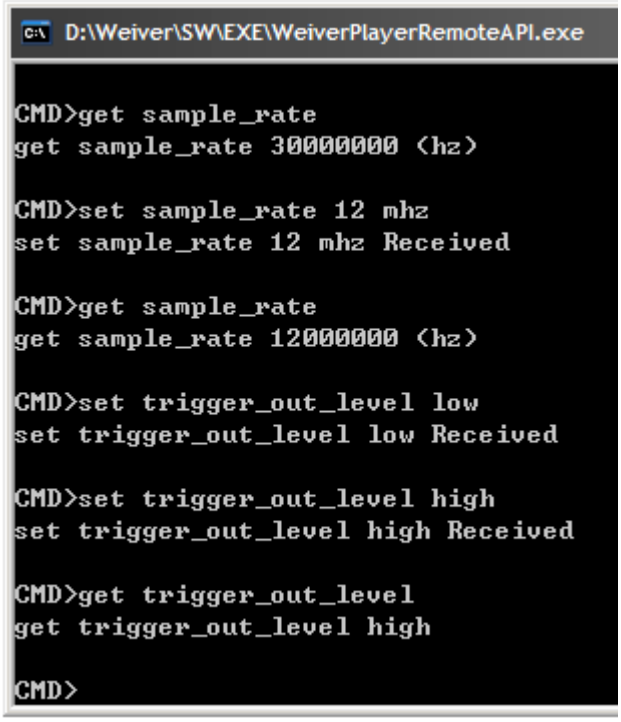
- set sample_rate, get sample_rate command

  Example) 1. set sample_rate 12000000, set sample_rate 12 mhz, set sample_rate 12000 khz
  2. get sample_rate



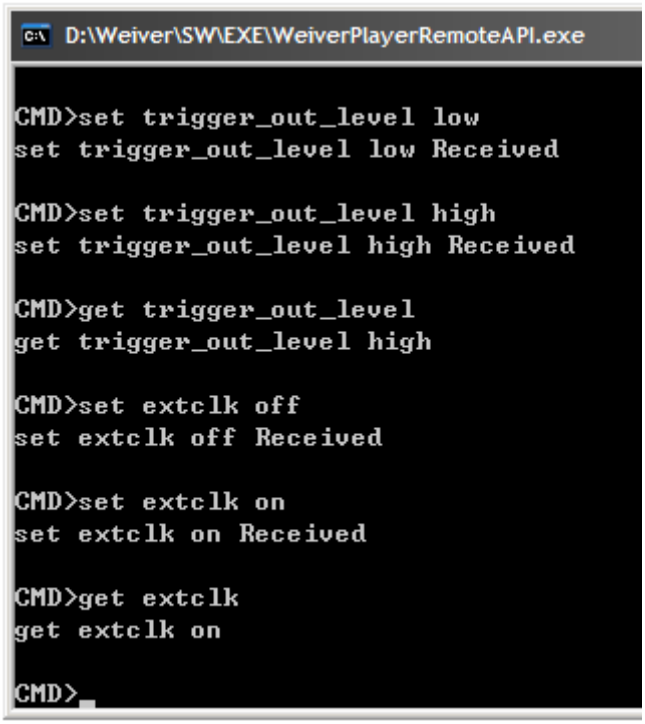
- set trigger_out_level, get trigger_out_level command

  Example) 1. set trigger_out_level low
  2. set trigger_out_level high



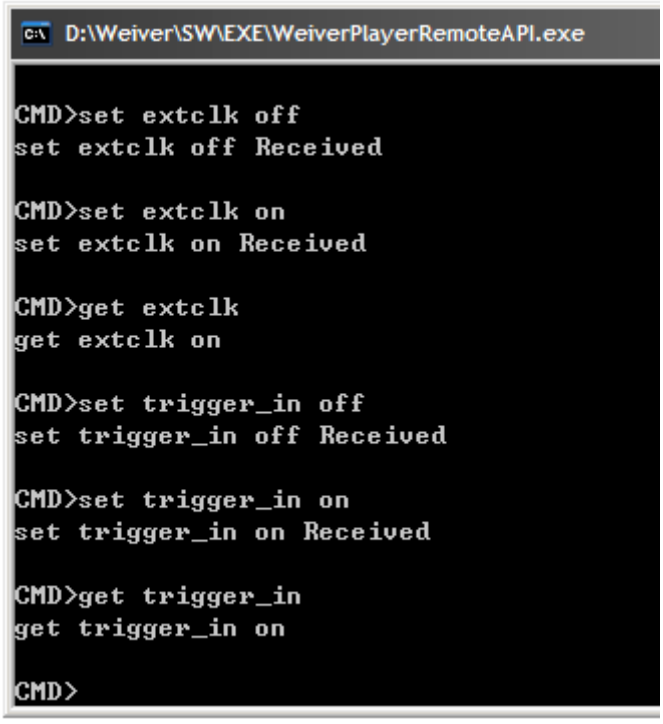
- set extclk, get extclk command

  Example) 1. set extclk off
  2. set extclk on
  3. get extclk



- set trigger_in, get trigger_in command

  Example) 1. set trigger_in off
  2. set trigger_in on
  3. get trigger_in



1.5 / WeiverPlayerRemoteAPI source

```
CWinApp theApp;
using namespace std;
const unsigned short u2_WeiverPlayerPort = WEIVER_PLAYER_API_RX_PORT;
const unsigned short u2_RecvPortFromWeiverPlayer = 50000;
const char s1a_WeiverPlayerIP[] = "192.168.100.1";
//const char s1a_WeiverPlayerIP[] = "127.0.0.1";
//const char s1a_WeiverPlayerIP[] = "192.168.10.15";

int _tmain(int argc, TCHAR* argv[], TCHAR* envp[])
{
	int nRetCode = 0;

	if (!AfxWinInit(::GetModuleHandle(NULL), NULL, ::GetCommandLine(), 0))
	{
		_tprintf(_T("AfxWinInit failed.\n"));
		nRetCode = 1;
	}
	else
	{
		wchar_t wCmdLine[1000];
		wchar_t wSendCmd[1000];

		WSADATA wsaData;
		WSAStartup(MAKEWORD(2,2), &wsaData);

		while(nRetCode == 0)
		{
			memset(wCmdLine, 0, 1000);
			memset(wSendCmd, 0, 1000);

			wprintf(_T("\nCMD>"));

			_getws_s(wCmdLine, 1000);
```

```
                    if(wcsncmp(wCmdLine, _T("exit"), wcslen(_T("exit"))) == 0)
                    {
                        nRetCode = 1;
                    }
                    else
                    {
                        SendToStringCMD((char*)wCmdLine, 2*wcslen(wCmdLine));
                    }
                    wprintf(_T("\n"));
                }

                WSACleanup();

            }

            return nRetCode;
}

void SendToStringCMD(char *s1p_Data, unsigned int u4_Size)
{
            SOCKET h_Socket;
            SOCKADDR_IN Addr;

            int SentBytes;

            WvPlayerRemotePacket_t t_Packet;
            WvPlayerRemotePacket_tp tp_Packet;

            char *pSendData = (char *)&t_Packet;


            char   message[2000];
            memset(message, 0, 2000);


            int clntAddrSize = sizeof(Addr);
```

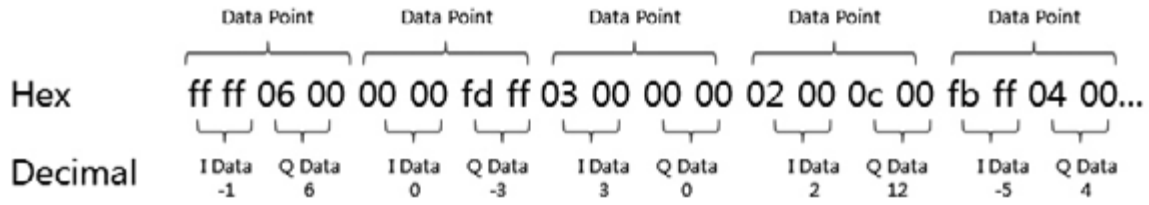
```
h_Socket = socket(PF_INET, SOCK_DGRAM, IPPROTO_UDP);

memset(&Addr, 0, sizeof(Addr));
Addr.sin_family = AF_INET;
Addr.sin_port = htons(u2_RecvPortFromWeiverPlayer);
Addr.sin_addr.s_addr = htonl(INADDR_ANY);


struct timeval timeout;
timeout.tv_sec = 2;//2 seconds
timeout.tv_usec = 0;
int optlen = sizeof(timeout);

setsockopt(h_Socket, SOL_SOCKET, SO_RCVTIMEO, (const char *)&timeout, optlen);
if(bind(h_Socket, (SOCKADDR*)&Addr, sizeof(Addr)) == SOCKET_ERROR)
{
        wprintf(_T("bind() Error"));
        closesocket(h_Socket);
        return;
}


t_Packet.u4_ID = WEIVER_PLAYER_ID;
t_Packet.u4_Reserved = WV_PLAYER_REMOTE_CMD_SET_STRING;
t_Packet.u4_DataSize = u4_Size;

memset(t_Packet.u1a_Data, 0, 1000);
memcpy(t_Packet.u1a_Data, s1p_Data, u4_Size);

memset(&Addr, 0, sizeof(Addr));
Addr.sin_family = AF_INET;
Addr.sin_port = htons(u2_WeiverPlayerPort);
Addr.sin_addr.s_addr = inet_addr(s1a_WeiverPlayerIP);
```

```
        SentBytes = sendto(h_Socket
                                ,pSendData
                                ,4/*sizeof(t_Packet.u4_ID)*/
                                + 4/*sizeof(t_Packet.u4_Reserved)*/
                                + 4/*sizeof(t_Packet.u4_DataSize)*/ + u4_Size
                                ,0, (SOCKADDR*)&Addr, sizeof(SOCKADDR_IN));

        if(SentBytes == SOCKET_ERROR)
        {
                wprintf(_T("\nSend Fail"));
        }
        else
        {
                memset(&Addr, 0, sizeof(Addr));

                int length = recvfrom(h_Socket
, message, 2000, 0, (SOCKADDR*)&Addr, &clntAddrSize);

                if(length == -1)
                {
                        wprintf(_T("Time Out"));
                }
                else
                {
                        tp_Packet = (WvPlayerRemotePacket_tp)(message);

                        wprintf(_T("%s"), tp_Packet->u1a_Data);
                }
        }

        closesocket(h_Socket);
}
```

Appendix. A

A-1. Recorded Output File [FileName.iqw, FileName.log]

- **FileName.iqw**



- **FileName.wpj**

Line 1: $Ver,1,IQ FileName,Cap_20110510_090927.iqw,IQ Rate,30000000,Center,474000000,Tracking, 1,AGC,0
Line 2: $GAIN,22.3,POWER,-42.1,,,TIME,1
Line 3: $GPRMC,214614.036,V,,,,,0.00,0.00,060180,,,N*43
Line 4: $GAIN,22.3,POWER,-42.1,,,TIME,2 Line 5: $GPRMC,214615.036,V,,,,,0.00,0.00,060180,,,N*42

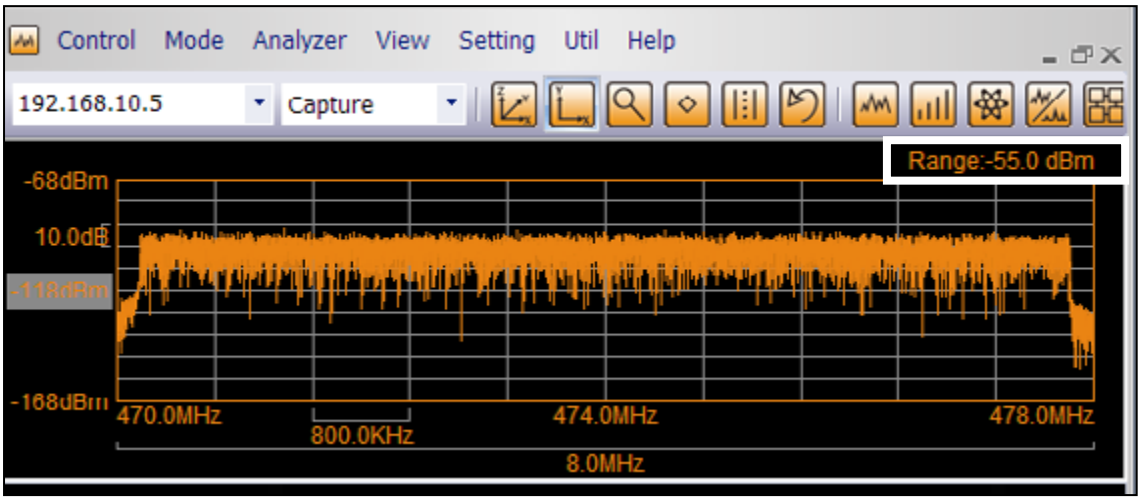
Line 1: File Info. Ver: 1
IQ FileName:Cap_20110510_090927.iqw
IQ Rate:30000000(30MHz : BW 24M)
Center:474000000(474MHz)
Tracking:1(0:Disable, 1:Enable)
AGC:0(0:Off, 1:On)

Line 2: Gain Info.
Ling 3: GPS Info.

Line 1: $Ver,1,IQ FileName,Cap_20110510_090924.iqw,IQ Rate,10000000,Center,474000000,Tracking,
1,AGC,0
Line 2: $GAIN,22.3,POWER,-52.2,,,TIME,1
Line 3: $GPRMC,214605.036,V,,,,,0.00,0.00,060180,,,N*43
Line 4: $GAIN,22.3,POWER,-52.2,,,TIME,2 Line 5: $GPRMC,214606.036,V,,,,,0.00,0.00,060180,,,N*40
…
Line 1: File Info. Ver: 1
IQ FileName: Cap_20110510_090924.iqw
IQ Rate:10000000(10MHz : BW 8M)
Center:474000000(474MHz)
Tracking:1(0:Disable, 1:Enable)
AGC:0(0:Off, 1:On)
Line 2: Gain Info.
Ling 3: GPS Info.

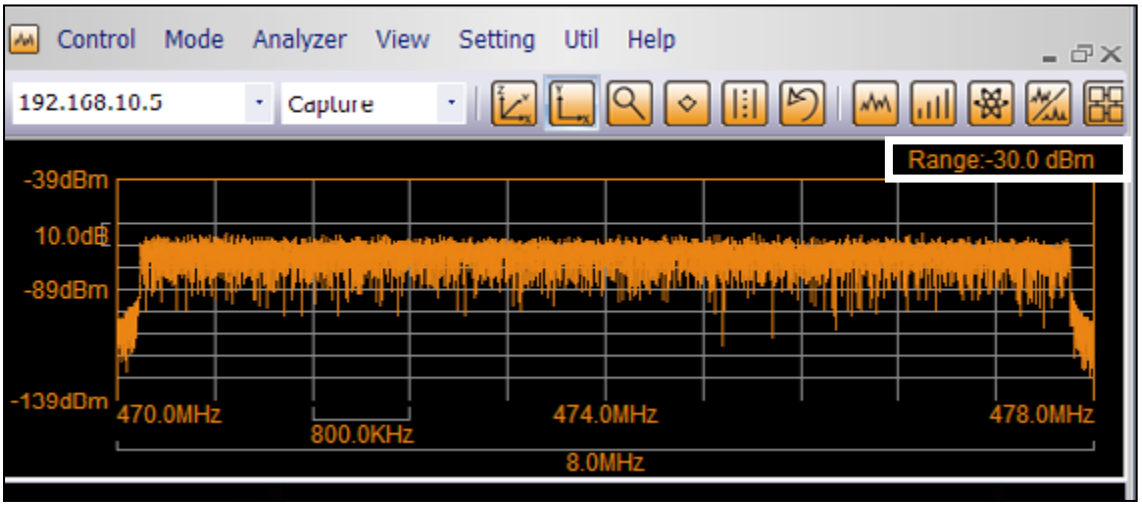
A-2. Weiver MER Range Relation

- RF IN Power : -60dBm



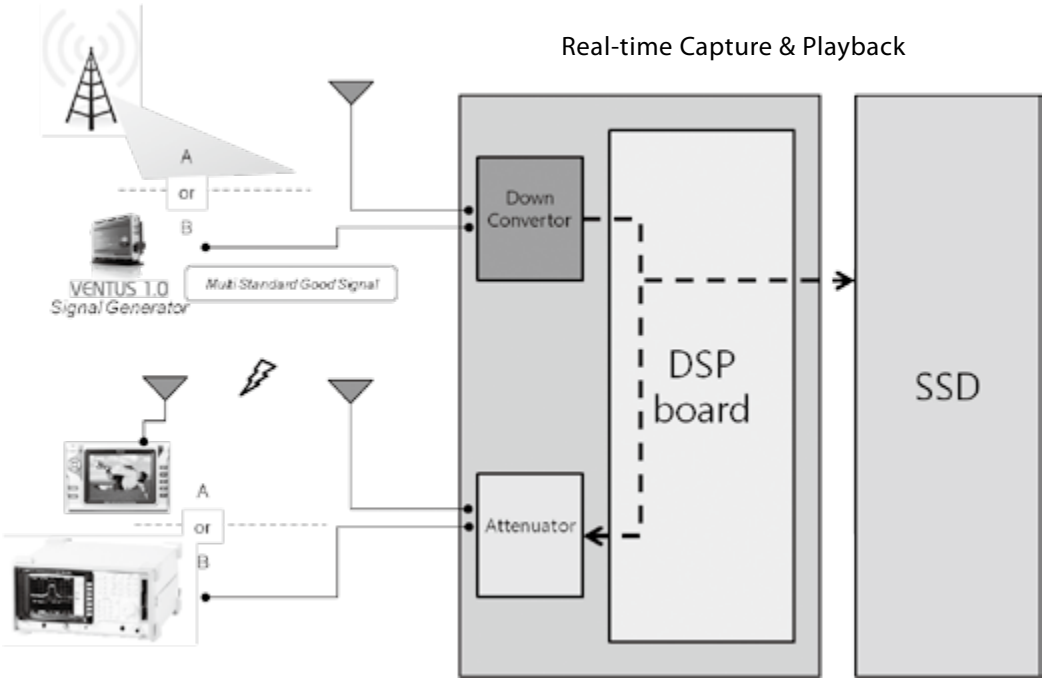
MER Performance	Excellent		Good		...		Bad		Very Bad
Range(dBm)	-55		-50		...		-5		0

- RF IN Power : -30dBm

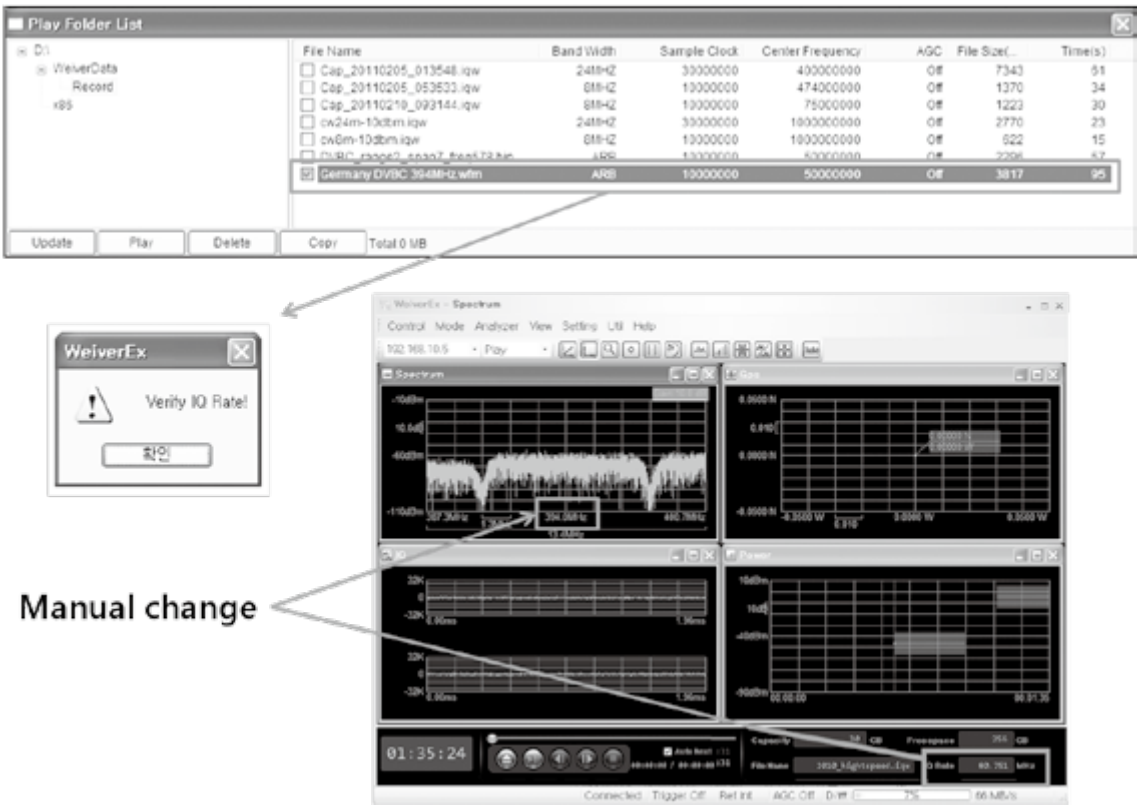


MER Performance	Excellent		Good		...		Bad		Very Bad
Range(dBm)	-30		-25		...		-5		0

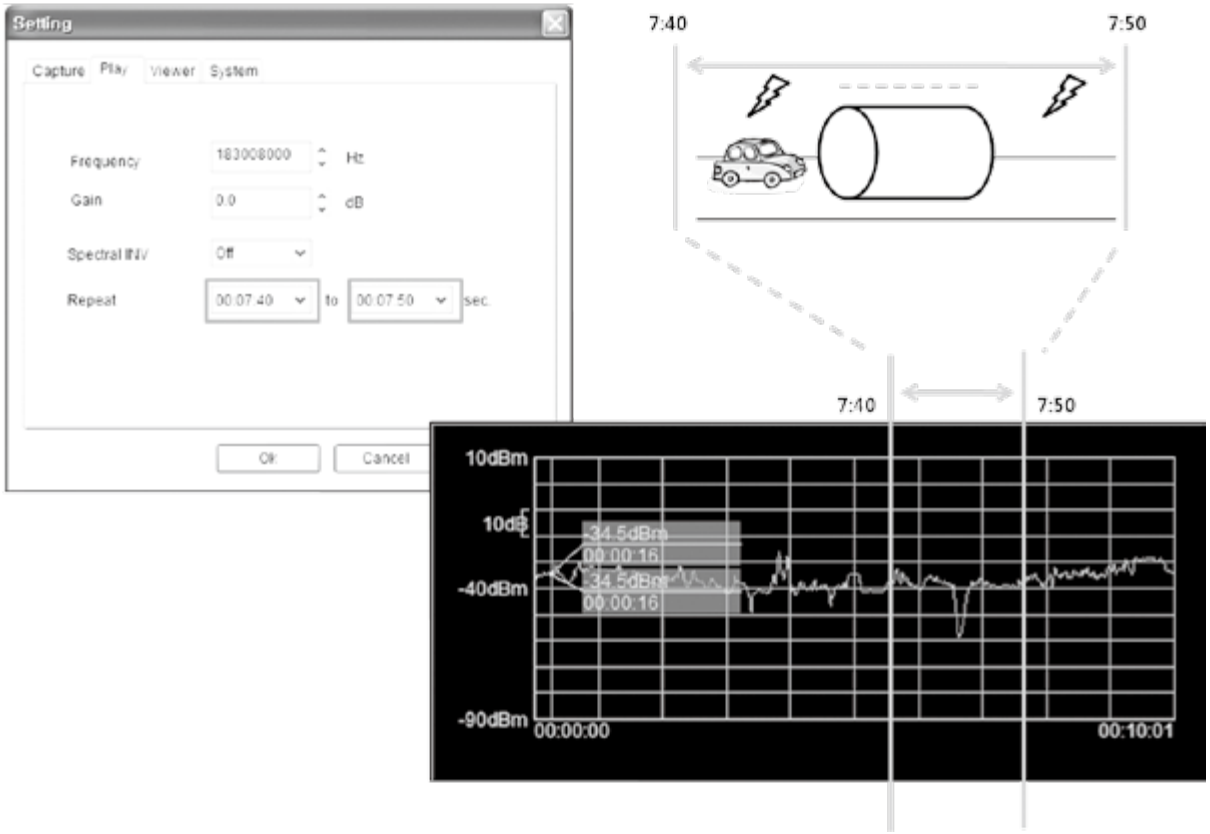
A-3. Simultaneous Capture and Playback



A-4. Arbitrary I/Q Rate Play

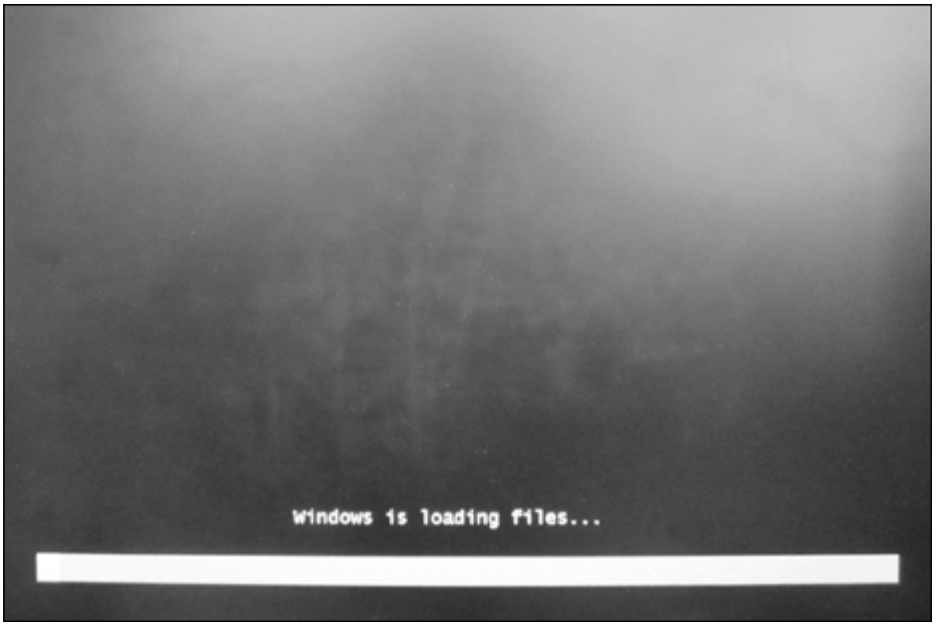


A-5. Configurable Repeat Play

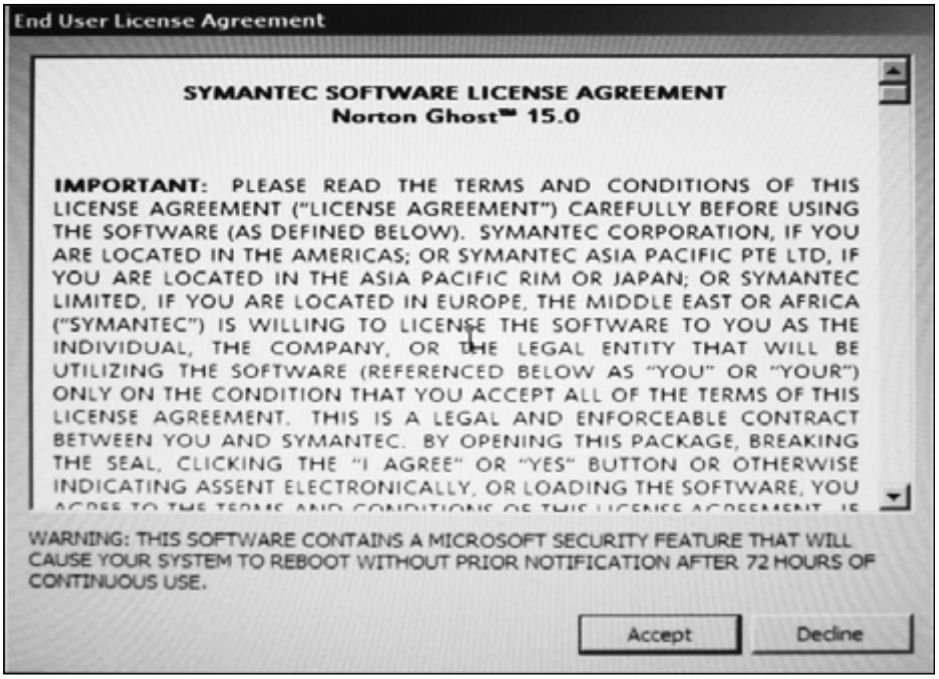


Appendix. B Ghost 15.0 Restore

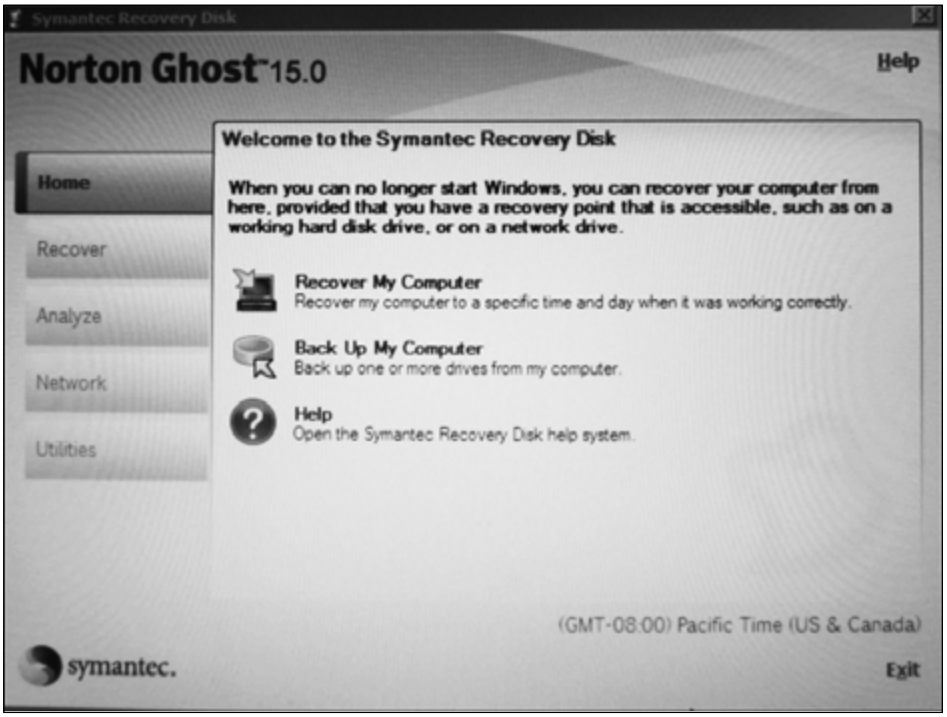
- Please insert the USB Recovery Disk into USB port of Weiver system. Before the Recovery process, Weiver system must be set to use Boot from CD-ROM at BIOS configuration.



- When the License Agreement screen coming, Please click the Accept button.


End User License Agreement
SYMANTEC SOFTWARE LICENSE AGREEMENT
Norton Ghost™ 15.0
IMPORTANT: PLEASE READ THE TERMS AND CONDITIONS OF THIS LICENSE AGREEMENT ("LICENSE AGREEMENT") CAREFULLY BEFORE USING THE SOFTWARE (AS DEFINED BELOW). SYMANTEC CORPORATION, IF YOU ARE LOCATED IN THE AMERICAS; OR SYMANTEC ASIA PACIFIC PTE LTD, IF YOU ARE LOCATED IN THE ASIA PACIFIC RIM OR JAPAN; OR SYMANTEC LIMITED, IF YOU ARE LOCATED IN EUROPE, THE MIDDLE EAST OR AFRICA ("SYMANTEC") IS WILLING TO LICENSE THE SOFTWARE TO YOU AS THE INDIVIDUAL, THE COMPANY, OR THE LEGAL ENTITY THAT WILL BE UTILIZING THE SOFTWARE (REFERENCED BELOW AS "YOU" OR "YOUR") ONLY ON THE CONDITION THAT YOU ACCEPT ALL OF THE TERMS OF THIS LICENSE AGREEMENT. THIS IS A LEGAL AND ENFORCEABLE CONTRACT BETWEEN YOU AND SYMANTEC. BY OPENING THIS PACKAGE, BREAKING THE SEAL, CLICKING THE "I AGREE" OR "YES" BUTTON OR OTHERWISE INDICATING ASSENT ELECTRONICALLY, OR LOADING THE SOFTWARE, YOU
WARNING: THIS SOFTWARE CONTAINS A MICROSOFT SECURITY FEATURE THAT WILL CAUSE YOUR SYSTEM TO REBOOT WITHOUT PRIOR NOTIFICATION AFTER 72 HOURS OF CONTINUOUS USE.
Accept
Decline

- Please click the Recover My Computer button on Home tap


Symantec Recovery Disk
Norton Ghost 15.0
Help
Welcome to the Symantec Recovery Disk
Home
Recover
Analyze
Network
Utilities
When you can no longer start Windows, you can recover your computer from here, provided that you have a recovery point that is accessible, such as on a working hard disk drive, or on a network drive.
Recover My Computer
Recover my computer to a specific time and day when it was working correctly.
Back Up My Computer
Back up one or more drives from my computer.
Help
Open the Symantec Recovery Disk help system.
(GMT-08:00) Pacific Time (US & Canada)
symantec.
Exit

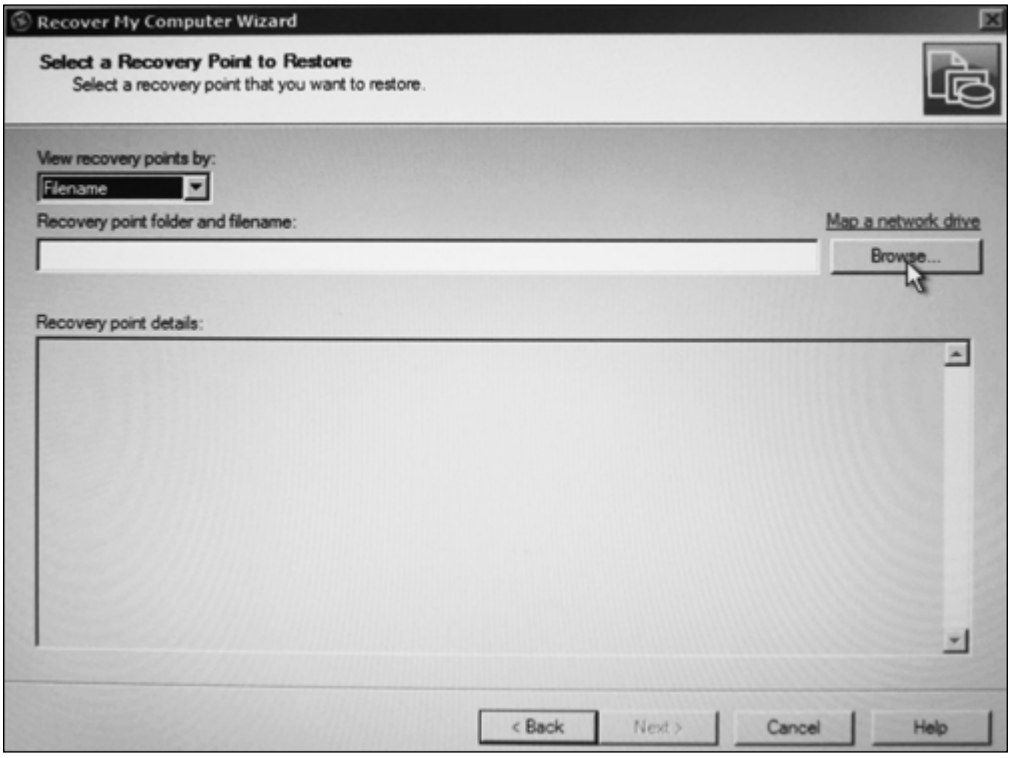
- Please click the Next button.

Recover My Computer Wizard
Welcome to the Recover My Computer Wizard
Use this wizard to recover your system drive, the drive where your operating system is installed (typically, drive C). Or use it to recover a secondary drive, which is any drive other than the system drive.
IMPORTANT: You should use the most recent, valid recovery point available. Be aware, however, that any changes to the hard drive since the recovery point was made, such as an edited file, are lost when you restore.
Drive letters under the Symantec Recovery Disk might not match those in the Windows environment.
To continue, click Next
symantec.
< Back
Next >
Cancel
Help

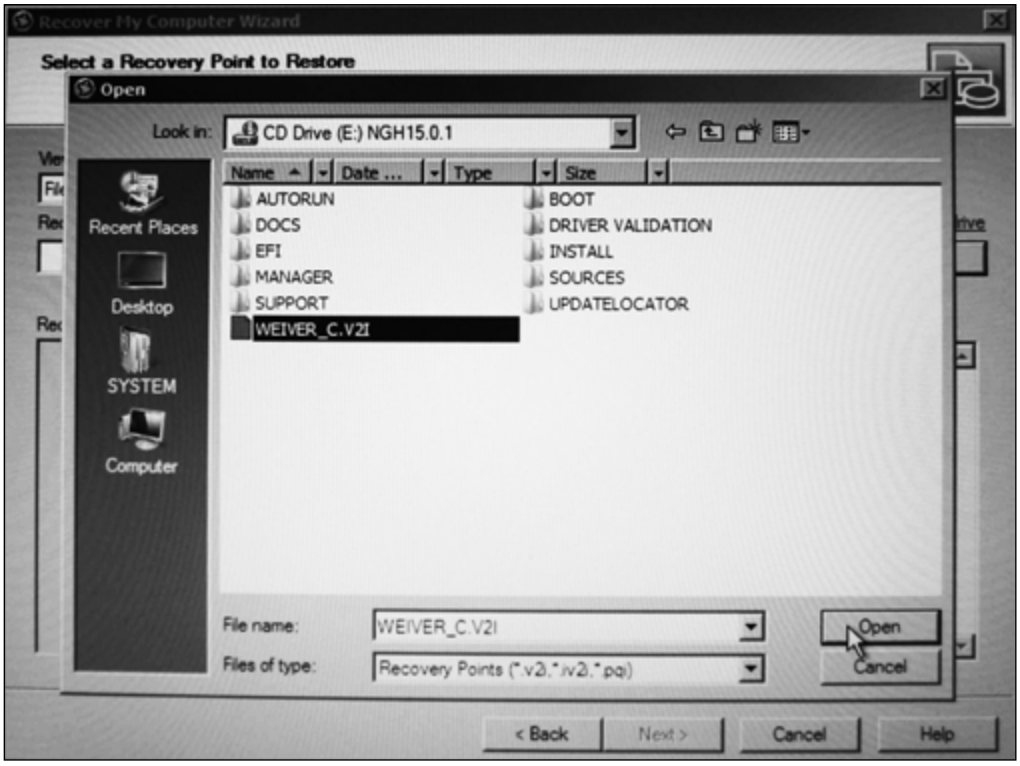
- Please click the OK button.

Recover My Computer Wizard
Welcome to the Recover My Computer Wizard
Use this wizard to recover your system drive, the drive where your operating system is installed (typically, drive C). Or use it to recover a secondary drive, which is any drive other than the system drive.
Recover My Computer Wizard
No recovery points were automatically detected for this computer.
Click OK to browse to a location that contains recovery points.
OK
Windows environment.
To continue, click Next
symantec.
< Back
Next >
Cancel
Help

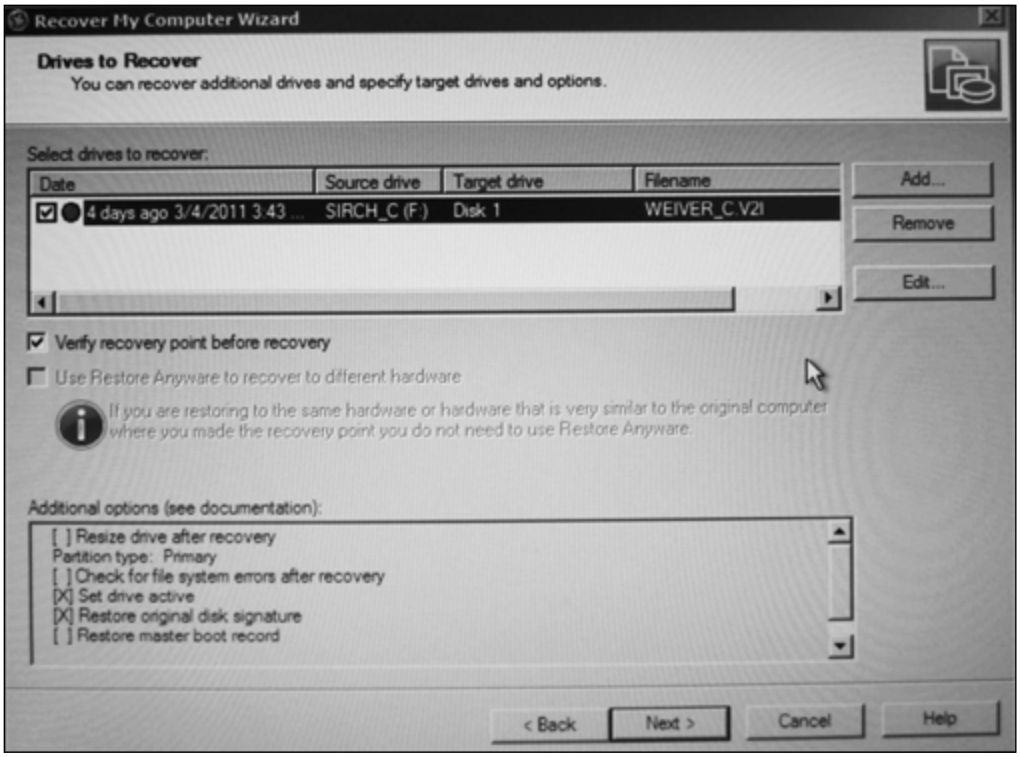
- Please click the Browse button.



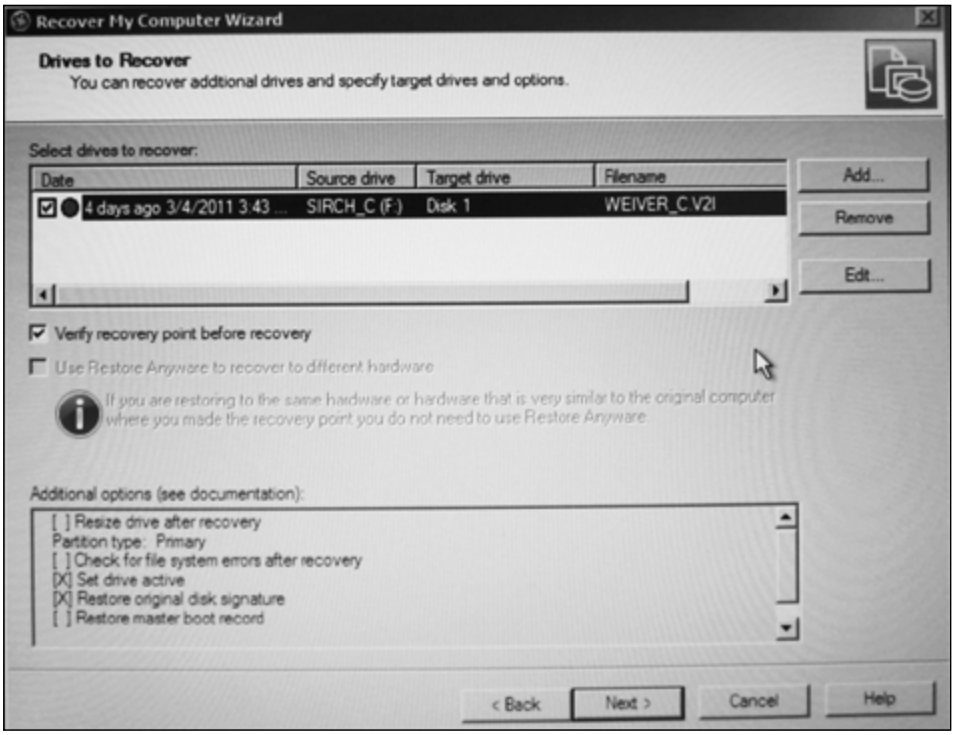
- Please select the Weiver_C.V2I file in CD (USB-CD) Drive.



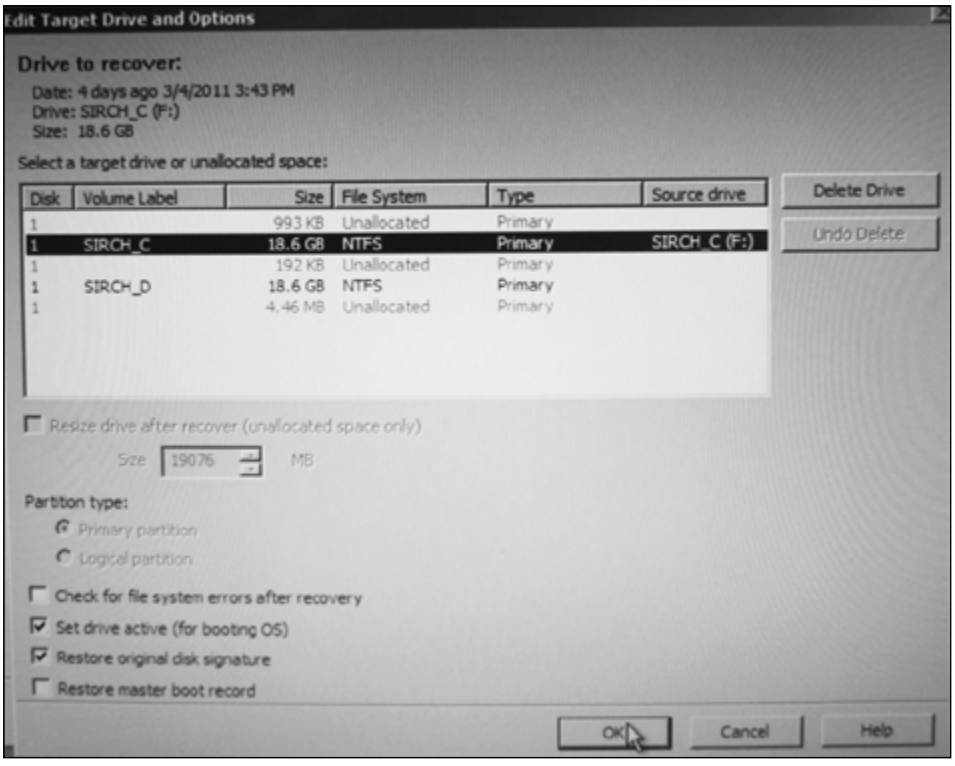
- Please click the Next button.


Recover My Computer Wizard
Drives to Recover
You can recover additional drives and specify target drives and options.
Select drives to recover:
Date
Source drive
Target drive
Filename
4 days ago 3/4/2011 3:43 ...
SIRCH_C (F:)
Disk 1
WEIVER_C.V2I
Add...
Remove
Edit...
Verify recovery point before recovery
Use Restore Anyware to recover to different hardware
If you are restoring to the same hardware or hardware that is very similar to the original computer where you made the recovery point you do not need to use Restore Anyware.
Additional options (see documentation):
[ ] Resize drive after recovery
Partition type: Primary
[ ] Check for file system errors after recovery
[X] Set drive active
[X] Restore original disk signature
[ ] Restore master boot record
< Back
Next >
Cancel
Help

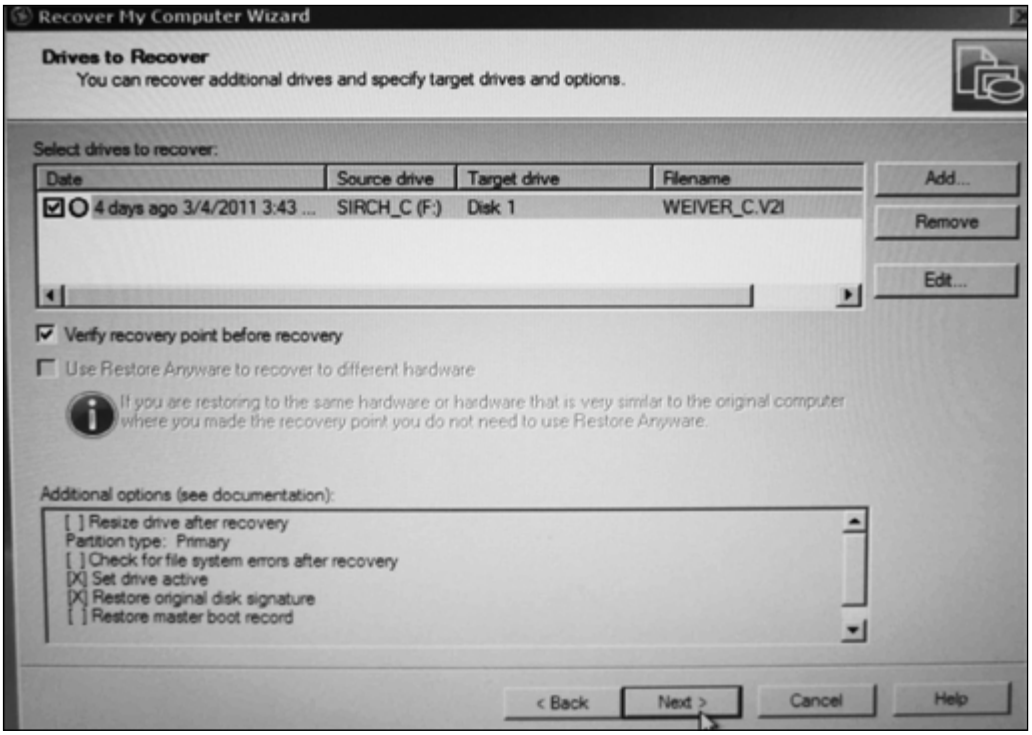
- Please click the Edit button.


Recover My Computer Wizard
Drives to Recover
You can recover addtional drives and specify target drives and options.
Select drives to recover:
Date
Source drive
Target drive
Filename
4 days ago 3/4/2011 3:43 ...
SIRCH_C (F:)
Disk 1
WEIVER_C.V2I
Add...
Remove
Edit...
Verify recovery point before recovery
Use Restore Anyware to recover to different hardware
If you are restoring to the same hardware or hardware that is very similar to the original computer where you made the recovery point you do not need to use Restore Anyware.
Additional options (see documentation):
[ ] Resize drive after recovery
Partition type: Primary
[ ] Check for file system errors after recovery
[X] Set drive active
[X] Restore original disk signature
[ ] Restore master boot record
< Back
Next >
Cancel
Help

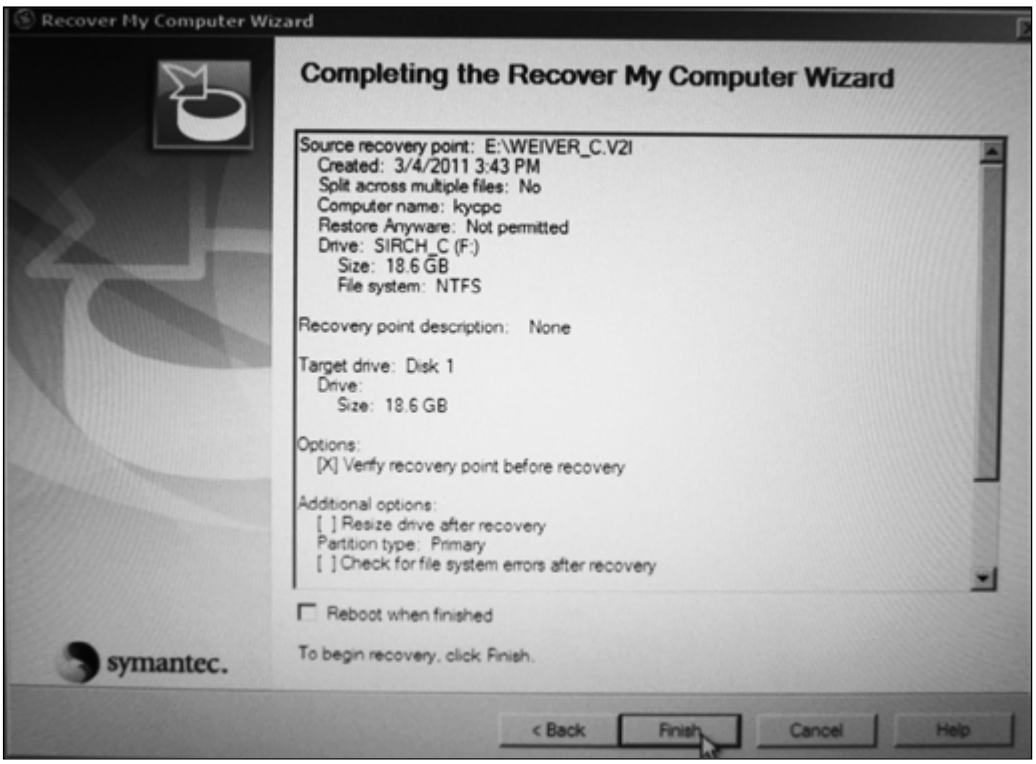
- Please select target to C drive.



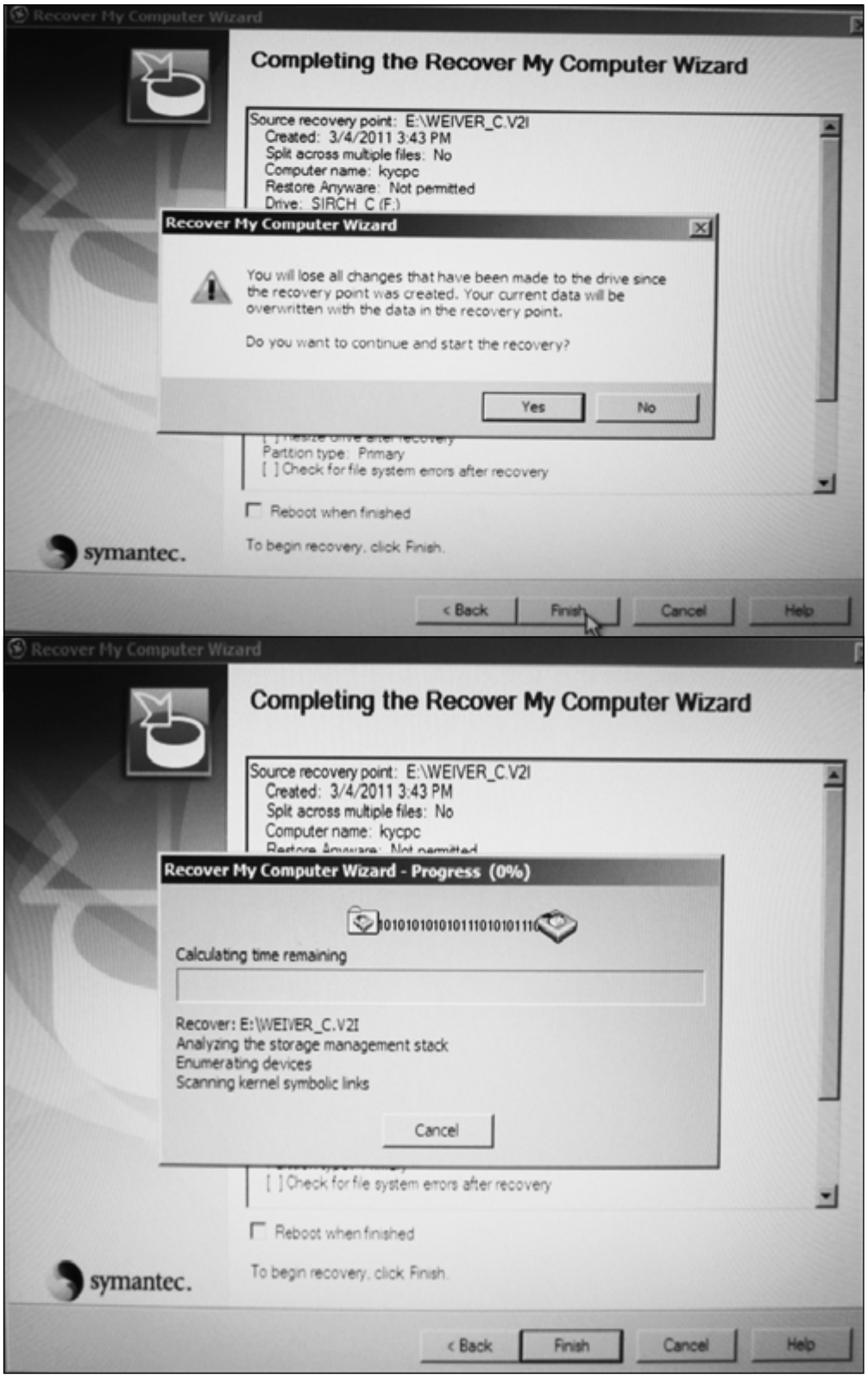
- Please click the Next button.


Recover My Computer Wizard
Drives to Recover
You can recover additional drives and specify target drives and options.
Select drives to recover:
Date
Source drive
Target drive
Filename
4 days ago 3/4/2011 3:43 ...
SIRCH_C (F:)
Disk 1
WEIVER_C.V2I
Add...
Remove
Edit...
Verify recovery point before recovery
Use Restore Anyware to recover to different hardware
If you are restoring to the same hardware or hardware that is very similar to the original computer where you made the recovery point you do not need to use Restore Anyware.
Additional options (see documentation):
[ ] Resize drive after recovery
Partition type: Primary
[ ] Check for file system errors after recovery
[X] Set drive active
[X] Restore original disk signature
[ ] Restore master boot record
< Back
Next >
Cancel
Help

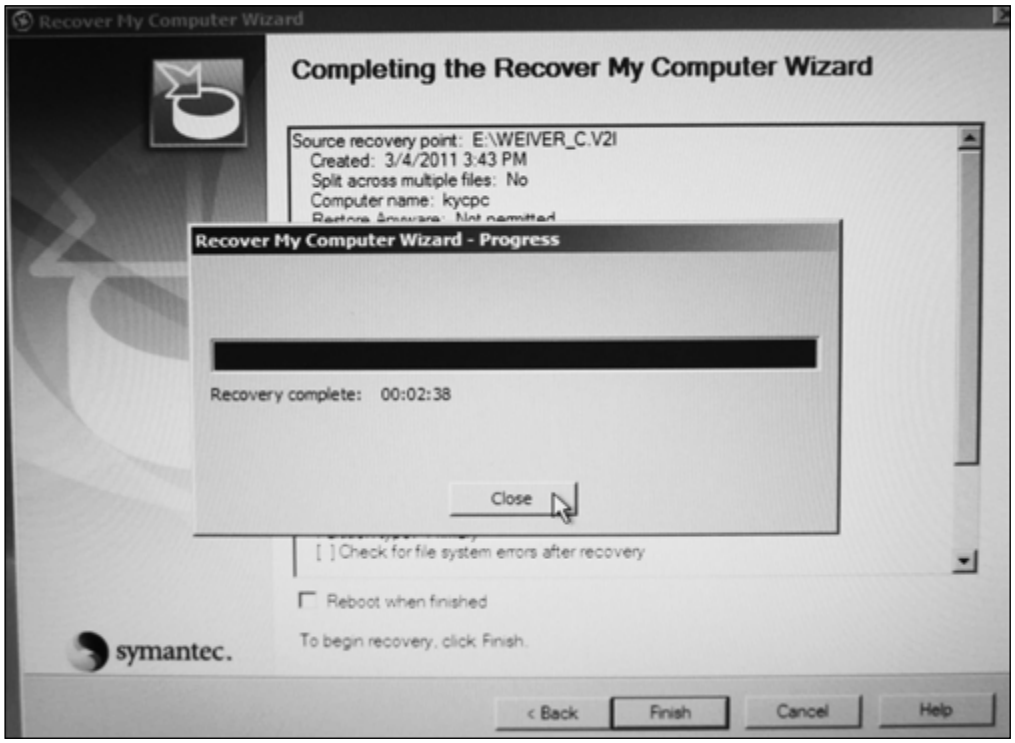
- Please click the Finish button.



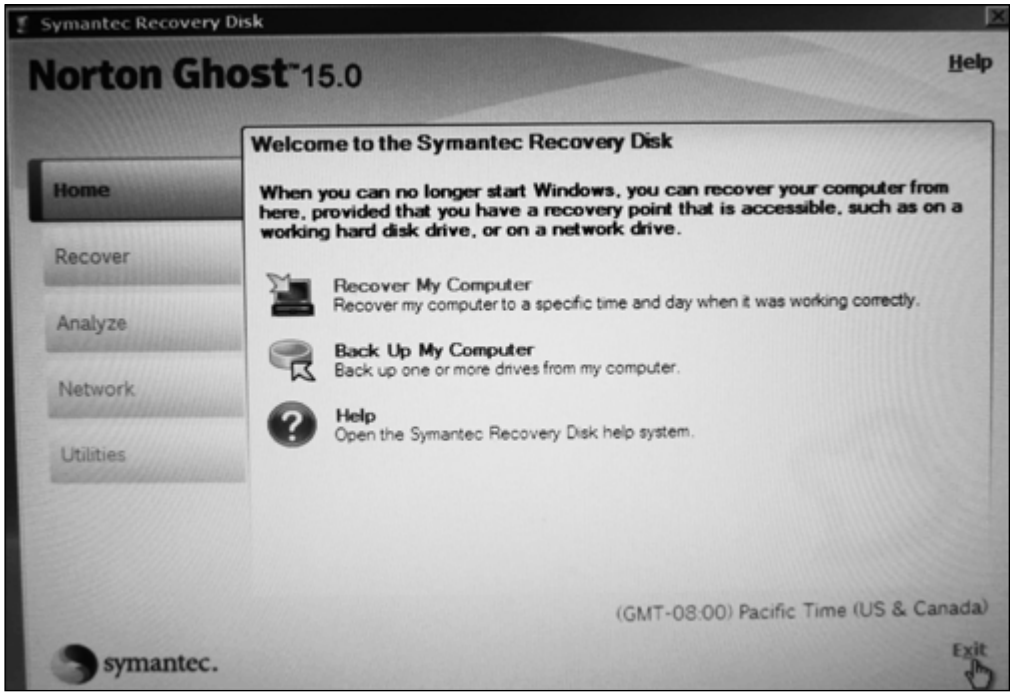
- When you click the Yes button, recovery process will be start.


Recover My Computer Wizard
Completing the Recover My Computer Wizard
Source recovery point: E:\WEIVER_C.V2I
Created: 3/4/2011 3:43 PM
Split across multiple files: No
Computer name: kycpc
Restore Anyware: Not permitted
Drive: SIRCH C (F:)
Recover My Computer Wizard
You will lose all changes that have been made to the drive since the recovery point was created. Your current data will be overwritten with the data in the recovery point.
Do you want to continue and start the recovery?
Yes
No
Partition type: Primary
[ ] Check for file system errors after recovery
Reboot when finished
To begin recovery, click Finish.
symantec.
< Back
Finish
Cancel
Help
Recover My Computer Wizard
Completing the Recover My Computer Wizard
Source recovery point: E:\WEIVER_C.V2I
Created: 3/4/2011 3:43 PM
Split across multiple files: No
Computer name: kycpc
Recover My Computer Wizard - Progress (0%)
Calculating time remaining
Recover: E:\WEIVER_C.V2I
Analyzing the storage management stack
Enumerating devices
Scanning kernel symbolic links
Cancel
[ ] Check for file system errors after recovery
Reboot when finished
To begin recovery, click Finish.
symantec.
< Back
Finish
Cancel
Help

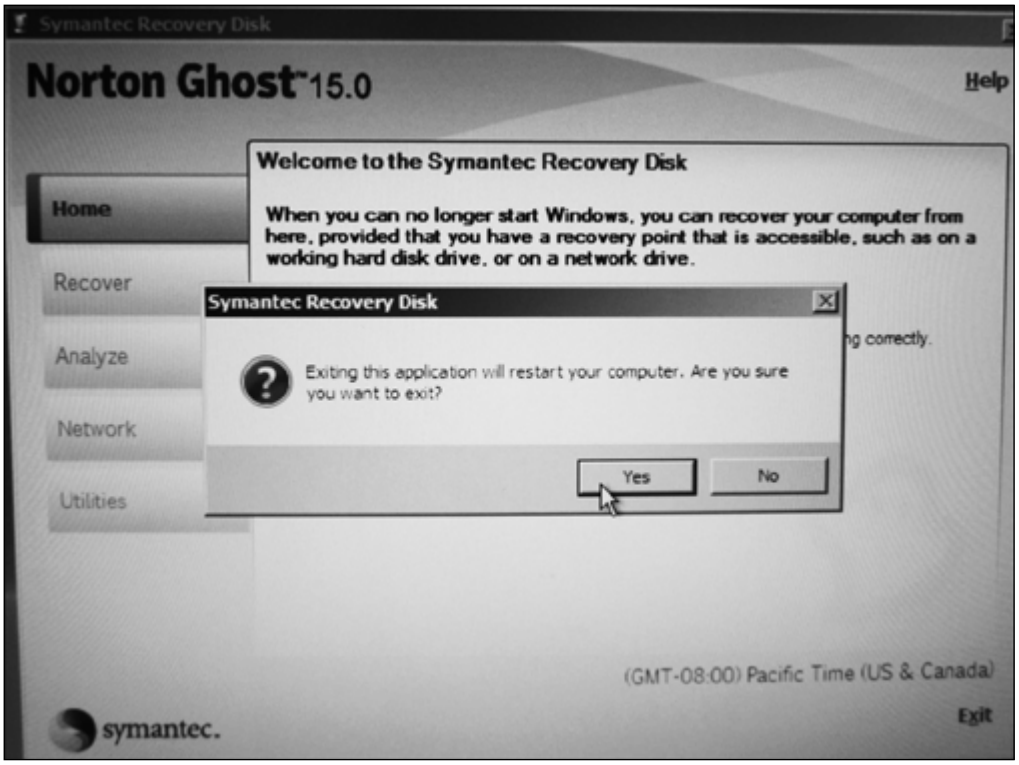
- When recovery process finished, please click the Close button.



- Please click the Exit button.

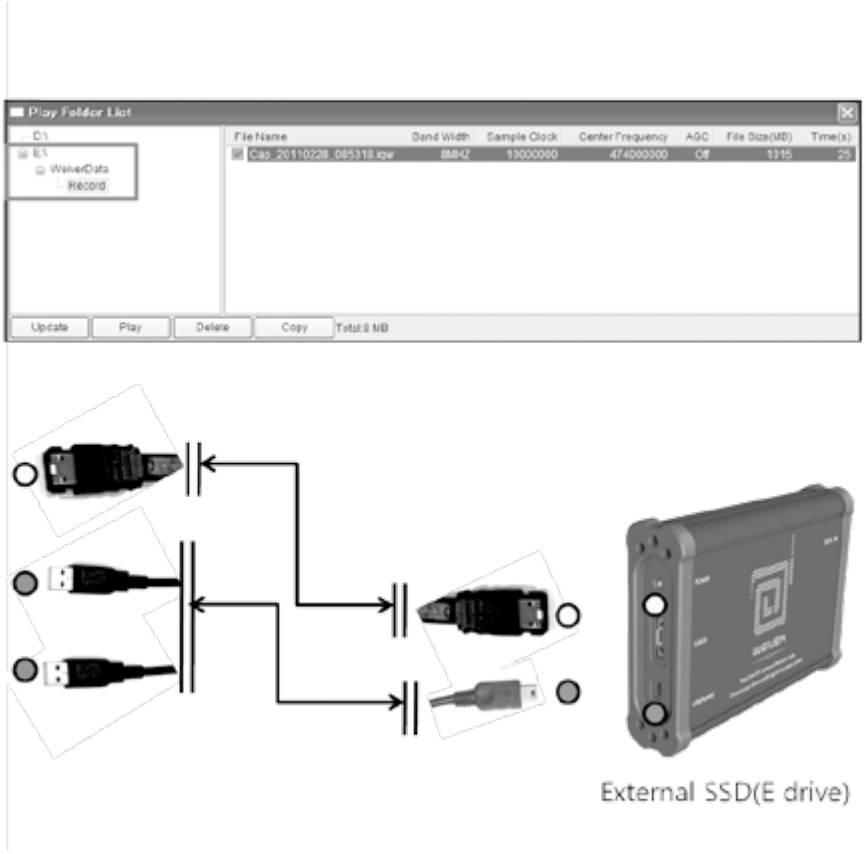

Symantec Recovery Disk
Norton Ghost™15.0
Help
Welcome to the Symantec Recovery Disk
Home
Recover
Analyze
Network
Utilities
When you can no longer start Windows, you can recover your computer from here, provided that you have a recovery point that is accessible, such as on a working hard disk drive, or on a network drive.
Recover My Computer
Recover my computer to a specific time and day when it was working correctly.
Back Up My Computer
Back up one or more drives from my computer.
Help
Open the Symantec Recovery Disk help system.
(GMT-08:00) Pacific Time (US & Canada)
symantec.
Exit

- Please click the Yes button. After this process, Weiver system must be reboot.


Symantec Recovery Disk
Norton Ghost 15.0
Help
Welcome to the Symantec Recovery Disk
When you can no longer start Windows, you can recover your computer from here, provided that you have a recovery point that is accessible, such as on a working hard disk drive, or on a network drive.
Home
Recover
Analyze
Network
Utilities
Symantec Recovery Disk
Exiting this application will restart your computer. Are you sure you want to exit?
Yes
No
(GMT-08:00) Pacific Time (US & Canada)
symantec.
Exit

Appendix. C

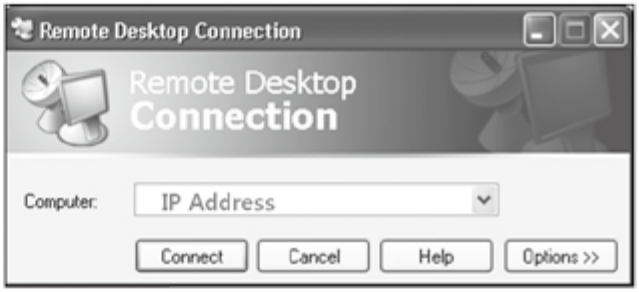
C-1. Weiver External SSD Connection Method



C-2. Remote Desktop Connection method

Factory Default Value for Remote Desktop Connection
(ID : Weiver Password : Lumantek) *** Case Sensitive**

Windows XP OS



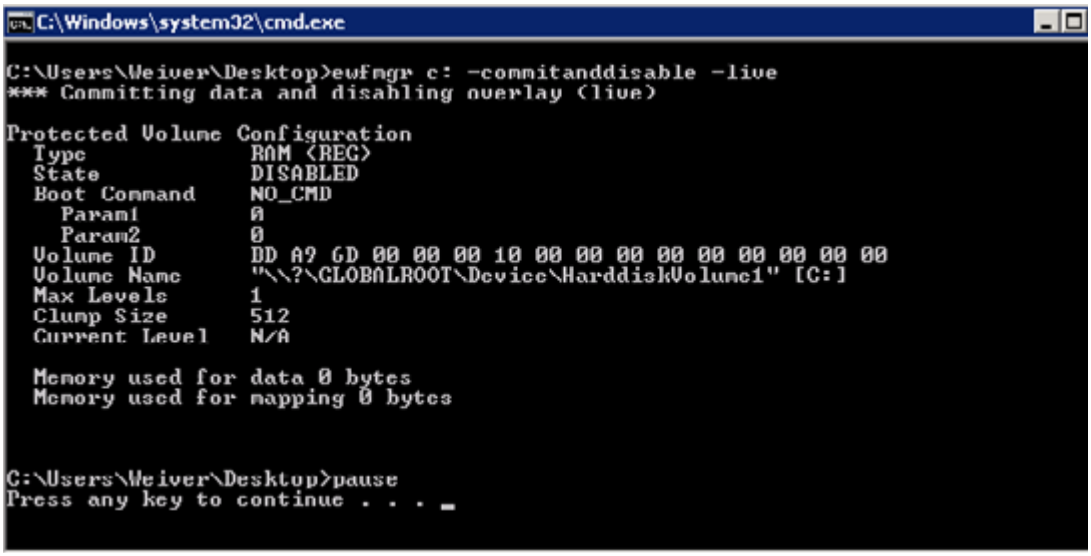
Windows 7 OS

C-3. Weiver EWF (Enhanced Write Filter) Control[Disable/Enable/State]

ewf_off

Please run ewf_off file on Weiver's desktop for the EWF disablement.

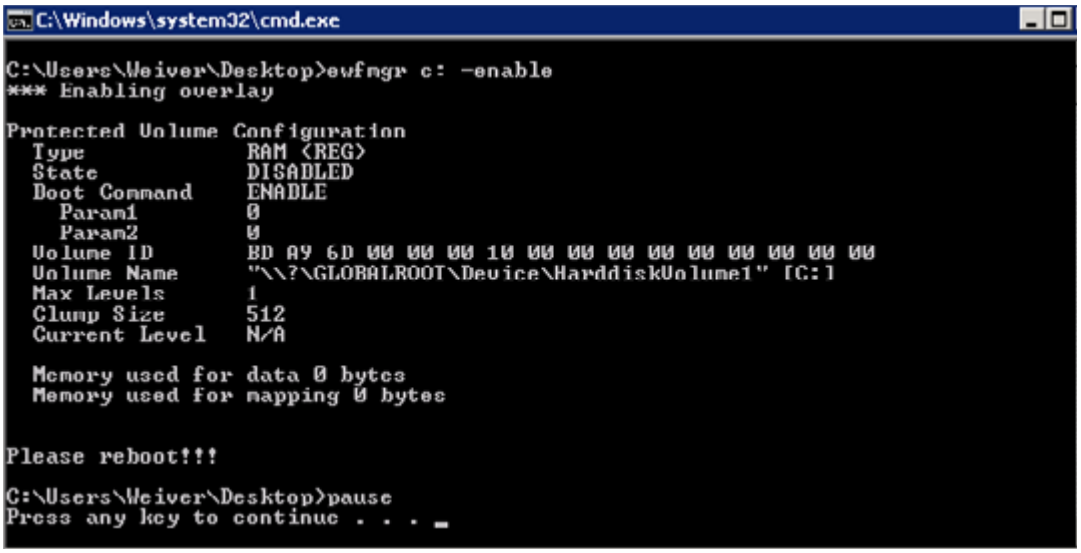
* Note : Before the WeiverCom installation or upgrade, EWF must be a disable state. Also, EWF Function must be Working on Weiver's desktop screen


C:\Windows\system32\cmd.exe
C:\Users\Weiver\Desktop>ewfmgr c: -commitanddisable -live
*** Committing data and disabling overlay (live)
Protected Volume Configuration
Type RAM (REG)
State DISABLED
Boot Command NO_CMD
Param1 0
Param2 0
Volume ID DD A9 GD 00 00 00 10 00 00 00 00 00 00 00 00 00
Volume Name "\\?\GLOBALROOT\Device\HarddiskVolume1" [C:]
Max Levels 1
Clump Size 512
Current Level N/A
Memory used for data 0 bytes
Memory used for mapping 0 bytes
C:\Users\Weiver\Desktop>pause
Press any key to continue . . .

ewf_on

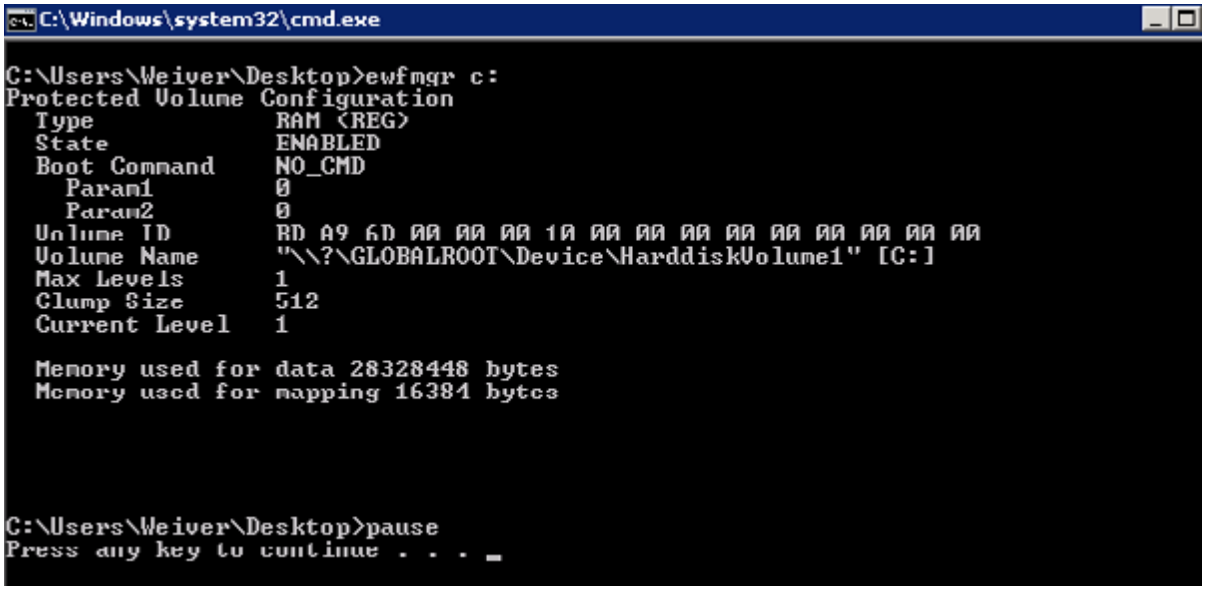
After the WeiverCom Installation or Upgrade, Please run ewf_on file on Weiver's desktop for the EWF enablement.

Please reboot the Weiver's system for applying EWF enablement.


C:\Windows\system32\cmd.exe
C:\Users\Weiver\Desktop>ewfmgr c: -enable
*** Enabling overlay
Protected Volume Configuration
Type RAM (REG)
State DISABLED
Boot Command ENABLE
Param1 0
Param2 0
Volume ID BD A9 6D 00 00 00 10 00 00 00 00 00 00 00 00 00
Volume Name "\\?\GLOBALROOT\Device\HarddiskVolume1" [C:]
Max Levels 1
Clump Size 512
Current Level N/A
Memory used for data 0 bytes
Memory used for mapping 0 bytes
Please reboot!!!
C:\Users\Weiver\Desktop>pause
Press any key to continue . . .

Please run ewf_state file on Weiver's desktop for the EWF state.

ewf_state


C:\Windows\system32\cmd.exe
C:\Users\Weiver\Desktop>ewfmgr c:
Protected Volume Configuration
Type RAM (REG)
State ENABLED
Boot Command NO_CMD
Param1 0
Param2 0
Volume ID BD A9 6D 00 00 00 10 00 00 00 00 00 00 00 00 00
Volume Name "\\?\GLOBALROOT\Device\HarddiskVolume1" [C:]
Max Levels 1
Clump Size 512
Current Level 1
Memory used for data 28328448 bytes
Memory used for mapping 16384 bytes
C:\Users\Weiver\Desktop>pause
Press any key to continue . . .

Weiver Spectrum, ResBW

D. Troubleshooting Guide

D-1. Unable to Detect Weiver 2.0 Device

Update the CMOS through USB memory booting. Please follow next steps.

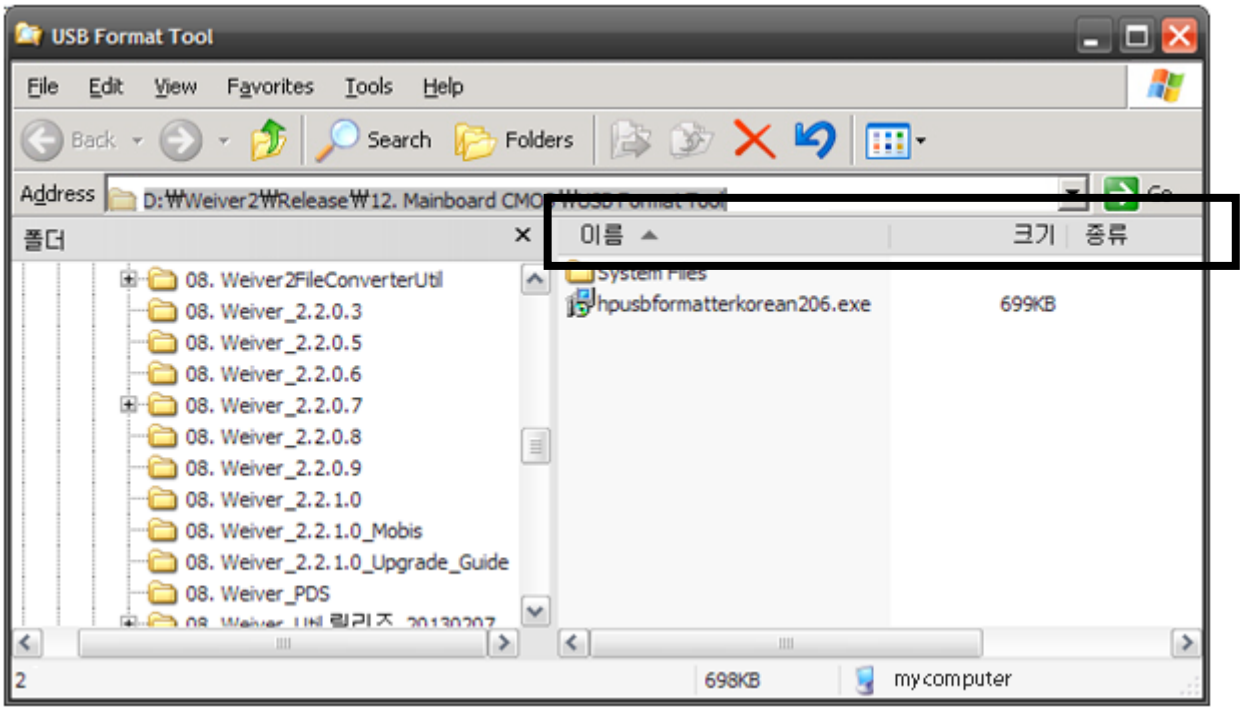
D-2. Unable to find contents of D: \ after completing the booting process

Please check the SSD drive. Visit http://www.samsung.com/sec/support/model/MZ-7PD128B/KR-downloads and download Magician Software ver. 4.0.

Please run 'SSD firmware checks' (Backup required) or 'Performance Optimization' to optimize the SSD.

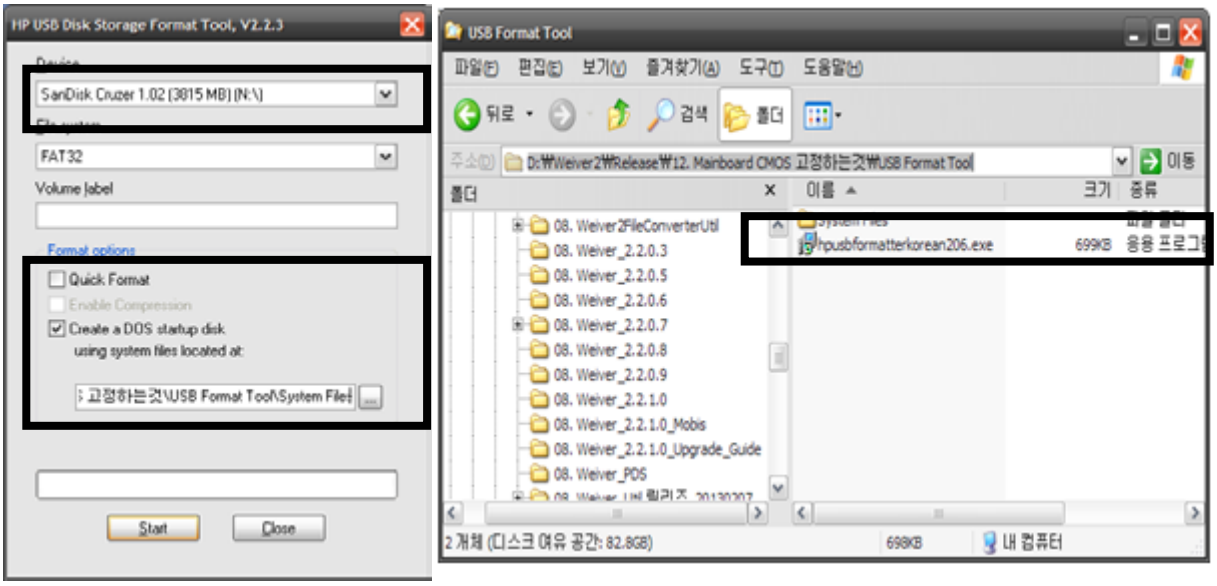
* Step by step Guide for Wiever 2.0 Mainboard Bios update

1. Making a Booting USB for DOS and Install Program

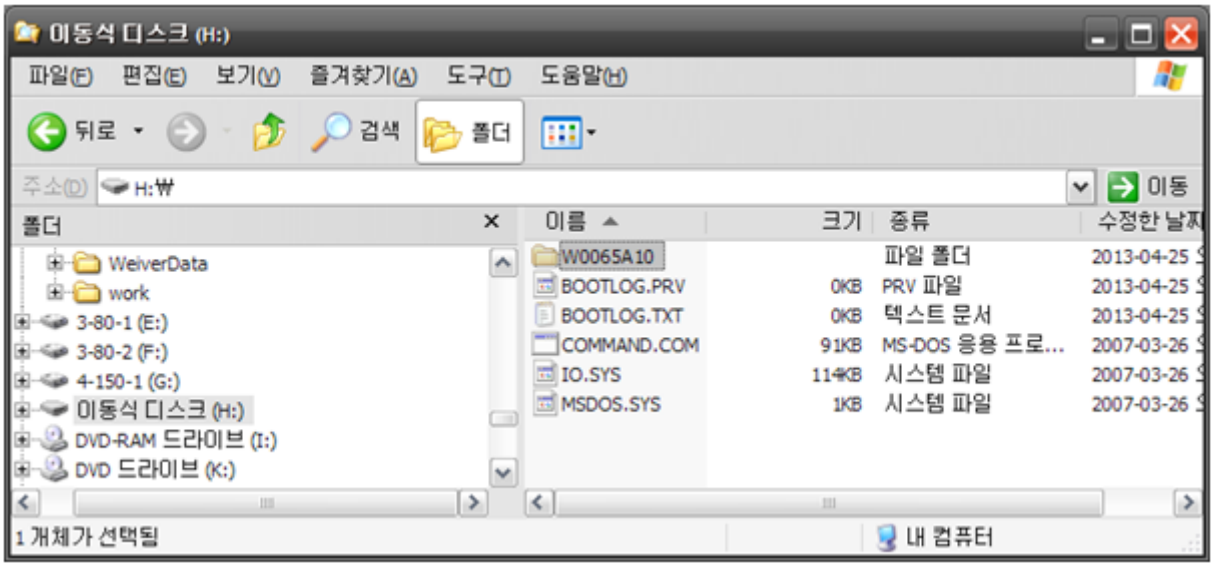


2. Insert a (blank) USB on PC and run installed the program.

3. Tick. "make a booting Disk" " input location of "System Files".
   Caution: this operation result in formatting the USB.



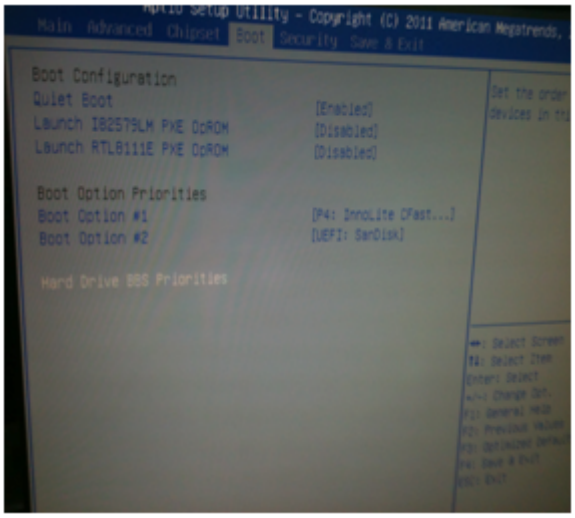
4. Copy W0065A10 folder on to the USB

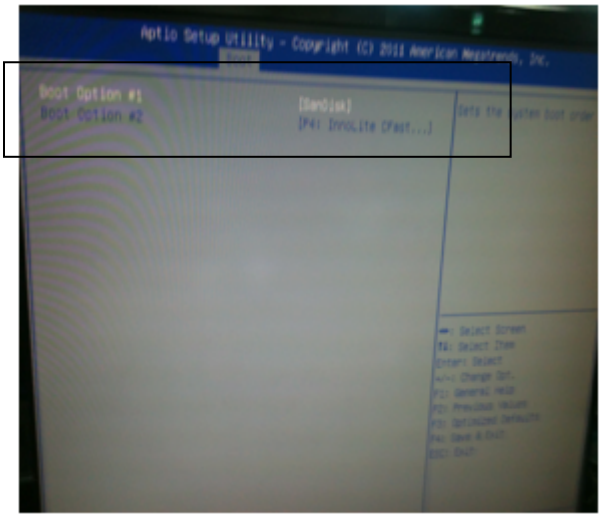


5. Booting USB is ready.

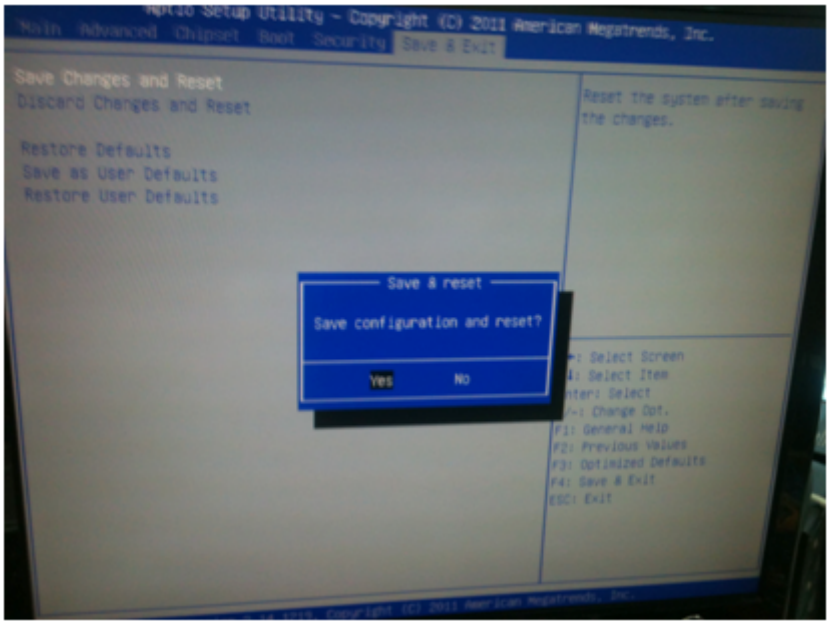
* USB booting for Weiver 2.0

1. Insert the booting USB and enter CMOS . Select booting configuration as USB.





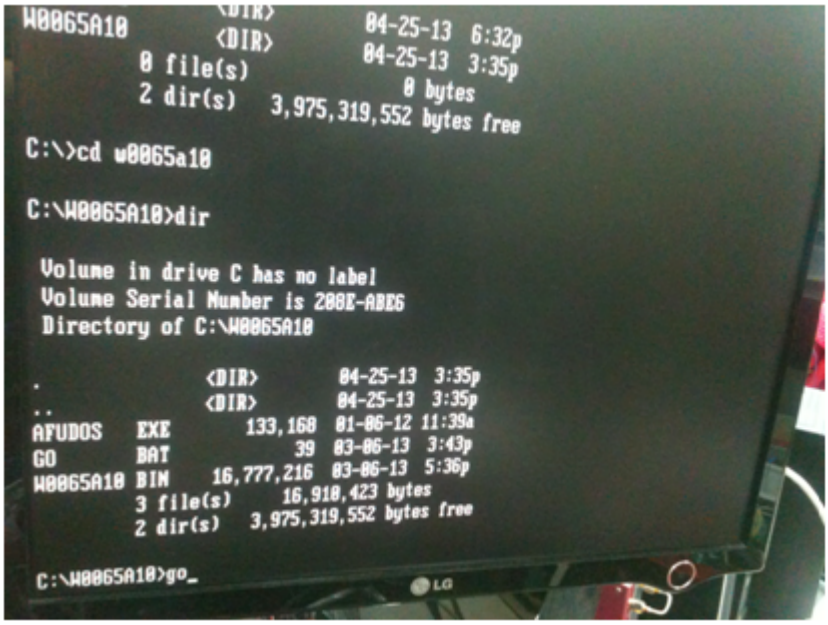
2. Save configurations and boot Weiver 2.0



3. After booting go to w0065a10 directory and Type "go.bat" and CMOS will be updated.

c:\cd w0065a10(enter)

c:\go(enter)



4. Done.

END

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